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*"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."*—GENERAL SHERMAN.

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# ATHLETICS IN THE ARMY.

## I.

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SUPERINTENDENT OF ATHLETICS, FORT SNELLING.

DURING a large part of our history the whole thought and effort of the American people have been directed to one thing, material, industrial development, money-making. Other things have been neglected, ourselves, and more especially the care, training and development of our bodies, even that attention which we have given to our mental development being, in general, in disregard and even contravention of the natural rights and demands of the body. The result is that we have begun to be a nation of nervous wrecks. Now, within the last few years this has dawned upon our intelligence, and there has been an awakening to the necessity of physical training to make and keep a healthy body and a sane mind. This is the meaning of the great bulk of literature, books, papers and magazines that have lately sprung into life devoted to athletics, outdoor sport and physical culture. They are an appeal, a recognition of the need and an expression of a desire for better physical training and development, They are not a sudden display of a love of sport heretofore latent in the public. Soldier or civilian, we are no less for business and no more for sport than we have all along been. It is not a question of sport at all, as many, especially in the army,

mistakenly take it, but of physical training for serious purposes, our life and business.

This revival of athletics, while widespread, is by no means general. Though large as a whole, and though we read and hear much of it, the proportion of the general public who care a straw for athletics is relatively very small, and in the army where, on account of younger men and less intentness on wealth-gathering, we might naturally expect a greater, this proportion is no larger. Here, as above remarked, there has been among our leaders in athletics a tendency to handle the matter as largely for play, sport, amusement, like college games, and but slightly for practical training.

Notwithstanding then the enthusiastic articles that fill our army magazines and newspapers, in spite of the appeals and directions of numerous orders, manuals and schemes, notwithstanding great field-days, meets, etc., and the full and enthusiastic reports thereof, we all, officers and men, at the average army post, know that in our everyday life the great bulk of us are brought up to the subject of army athletics only after all dodges and excuses have failed, and that, in general, we regard a field-day as an infernal nuisance and bore. Why is it?

In considering athletics for the army, the first question is, Are they a fad or are they of serious consequence? If a fad, the sooner they have run their course the better; if of serious consequence, if necessary or valuable in the preparation of the soldier for his duty in peace, and especially in war, the sooner the better they be reduced to a system and made an authorized, permanent, prescribed part of military training, like drill and target-practice. The concensus of army opinion is that some better physical training than we now have is not only desirable, but necessary, and that athletics in some form have come to stay with us. However, we may, as in the past, have temporarily forgotten it, trained bodies are and always will be essential to effective soldiers, and we had better sooner than later squarely face the question and make proper provision to try to make and maintain them.

The present state of athletics or physical training in the army is unsystematic, irregular and uncertain in the extreme. The schemes are as various as there are departments, posts and even companies, a matter of suggestion and interest in-

stead of prescription and order, dependent upon the discretion, the good will or the iniative of officers to whom the matter may in various posts be turned over. Discretion, good-will, initiative—I am the last to wish to suppress them. They are good things, but not the best. A system is the best—a definite, fixed system, the same for all, prescribed for all, understood by all. It is the only thing that operates steadily, regularly and with uniform results. Within such a system there is always still room enough for the exercise of all the discretion, good-will and individual initiative that are likely ever to prove profitable.

The present trouble with army athletics is:

1st. *We are wasting time and effort trying to do things by persuasion and encouragement when we could better do them by order.* If, as we know and feel, athletics are military training and of immense value in the preparation of the soldier for war, why do the long, rambling appeals and interest-encouraging exhortations called "orders" continue to issue from various headquarters? Why can the methods of instruction not be ordered instead of merely suggested or pointed out? If we relied upon persuasion, encouragment and personal interest, how much drill and target-practice would we have to-day? In its essentials, athletic training is in the same class with drill regulations and target-practice, and should be handled in like manner, by order, and not, as at present, by exhortation.

2d. *In athletics we are doing by an unmilitary system of superintendence and committees things that should be done by the existing military organization.* We are split up in our ideas of what athletics are or should be. In one place they are pure sport, in another and in general a queer mixture of the ideas of sport and training, nowhere what they should be, physical training, pure and simple. In consequence of these half-and-half views we are trying to apply methods of sport in fancy to the purpose of training—in fact, have gone many steps backward, laying aside our military organization for the unorganized civilian methods of working by superintendents, committees, etc. If athletics have any value at all, it is as military training. Now for military training the military organization was solely and specially designed and devised. For this it is good, and some form of it is found necessary and is used almost everywhere where men are

trained in any numbers for anything. Yet we have in some sense discarded or at least not used it in army athletics, but have detailed instructors, superintendents and athletic committees from officers and men who have little or no connection or authority in military organization over the men with whom they are to operate. This has come about apparently from the idea that the military organization is not adapted to the subject. If military organization and methods can be applied, as we know they have, in spite of jeers and adverse predictions, been with signal success applied to the training of the Hospital Corps in the care of the sick and in hospital attendance, for what that has to do with the training of men for any purpose are they not adapted? The care of the sick and hospital work in general are things infinitely further removed from drill and the military domain than are the subject and the purpose of athletics. The idea that the military organization and methods are not suited to athletics is absurd and should be gotten rid of, and our existing military organization used to the full if we wish army athletics ever to bring any adequate return for the time and worry we are having with them.

3d. *We regard athletics too much as sport and not as training.* The element of sport must be subordinated—better—completely swallowed up in the idea of training. Mongrels are always a bad breed, and combination tools never work well. In teaching and training, simplicity, one thing at a time, unmixed, uncomplicated with others, is a first principle. Besides, the general revival of athletics, which brought athletics into the army, was a revival, be it repeated, was a revival of attention to physical training and development of the body, not any sudden exhibition by our people of a love of sport and play. The American people are for business, not sport or play, and our army is of the same mind, as is shown by their lack of interest in army athletics as at present conducted. 50,000 Americans, taken at random, are not going to be made sports by suggestion, exhortation, or even by order; but 50,000 American soldiers can be made sufficiently athletic for all military purposes by turning athletics from sport, play and trifling, to training and the serious business of preparation for war. So long as this idea of sport remains predominant, or even prominent in army athletics, just so long will serious men take no interest and

army athletics remain in their present unsatisfactory, half-authorized condition. Half-authorized, I say, because no thoughtful authority is willing to appear as too full a promoter of the serious establishment in the service of a thing which smacks so strongly of mere play. Just so long, also, will we continue to use our present unorganized, ineffective, civilian methods of working by committees, superintendents, etc., instead of by an efficient military organization, for there can be no contention that the military organization is suited to the purposes of amusement or sport. It is not; it is for business and training.

4th. *We are doing athletics in disjointed, irregular, ununiform ways when it is practicable to do them by a system.* The variable, unsettled condition of athletics has already been remarked. There is little fixed, defined or obligatory in them. They depend upon the interest that can be aroused in them by appeal, exhortation, or by the popularity of the methods of their management. Could anything be more unbeseeming the military service? If sport, cease to try to make it official; if training, make it authoritative. Our drill regulations, history shows, passed through stages of uncertainty, ununiformity and non-prescription, when for tactical instruction we were more dependent upon suggestion, exhortation or personal enthusiasm of officers, more upon the good-will and interest that could be appealed to and aroused in the men than upon any authority or system. In other words, "tactics" were once where athletics are to-day. There were all schemes and none. The same was true of target-practice in its earlier days, and but yesterday courts-martial forms and methods were as varied as there were departments and department judge-advocates. Now that is all past, and these are to-day such definite. precise, formal, authoritative and prescriptive systems, and appear so necessarily and properly such that we can hardly think of them as ever having been otherwise. Athletics, I mean the training part, not the sporting fad part of them, are worthy and capable of like development. Let it come. We feel its need. To wait for years and the slow process of evolution to bring it would be mere dawdling. Let us have it now in a system, stripped of the play sport idea, adapted, as it easily may be, to the military organization, the squad, company, etc., made and provided by the same authority, the General Staff,

and prescribed in the same manner as the drill regulations and target-practice. To such a definite and authoritative system must athletics come if they are ever to be anything more than at present, sport to the few, a nuisance to the many.

## II.

By Captain H. S. HAWKINS, (Cav.)

Subsistence Department, U. S. Army.

There is no doubt that we Americans run to fads, and, running these fads into the ground, the reaction follows and we settle down to a conservative and reasonable use of what was at first an exaggerated and ill-considered idea. So it is with athletics. The system of athletic training in our colleges and academies has much to be condemned. That it will eventually settle down and become in reality a useful training instead of a craze is probably true. In the meantime, however, many individuals are injured by overdoing athletics.

This craze or fad has reached the army. We are now not only encouraged in athletics, but it is in many instances made compulsory. To make physical training compulsory is commendable provided it is not overdone and provided that the system is one which is calculated to injure none and to benefit all. But we are far from this. We will consider, first of all, the athletic games played throughout the army, but not as yet made compulsory. These are baseball, football, handball, basket-ball, golf, tennis and polo. All these, if not overdone, are of benefit to the participants; but let no one imagine that they are of benefit to a whole command. They should be regarded as recreations and as such should be encouraged, but never forced. The weakest link in a chain determines its strength, and so it is with a command of soldiers. These games benefit, and in some cases injure, a select few who are already well developed and who usually are physically superior to their comrades. If officers or enlisted men wish to play these games they should certainly be allowed to do so. A healthy recreation is thereby provided for both players and spectators. This is as much as is accomplished. Of these games baseball is perhaps the best, as more men can and do take active part than in the case of any other. It is less violent and less liable, therefore, to

injure the constitution of the player. Football is participated in by only the strongest and those needing physical development the least. Handball, basket-ball, tennis and polo benefit a few, but like all other games are liable to be overdone. Golf is perhaps the best for the average individual, as it is not violent and yet affords plenty of exercise in the fresh air. It is not played by enlisted men. Polo is a violent game which should be begun gradually and carefully. It does, unquestionably, improve horsemanship and increases the knowledge of bitting and saddling. Like football it increases self-reliance and calls for courage. From its nature it is purely an officers' game, and at posts where it is played with enthusiasm it usually includes about one half the commissioned force. It has the disadvantage of being expensive. Tennis is another game which is very beneficial, but most of us, instead of limiting ourselves to the proper amount, play and play until we leave the courts nearly exhausted. After all is said, therefore, these games, if not overdone, are beneficial to the few who play them, but should not be regarded as any serious part of the physical training of a military command. They are merely healthful recreations, and are played by those who do them the best and need them the least.

But now we come to another form of athletic games, sometimes made compulsory, and which, in my opinion, is absolutely pernicious in the military service, viz., a collection of sports held on what are called field-days. I do not mean that there is any objection to soldiers running races or engaging in any other contests, but it is the collection of these sports going to make up a field-day about which the army is going crazy. In some departments field-days have been ordered to be held at each post every month, and to end in an annual departmental meet. They are made part of the physical training of the soldier. Let us see how much training he gets from them. If a troop, battery or company has two men who can run they are selected every time to do the racing. Nobody else in that organization would think of running also. They merely clap their hands at the performances of their representatives. The whole organization does not run to see who is the best man. The runner knows already that he can run, and unless he knows it he will take no part in it. So it is with the jumping and all the other forms of field-sports. Some five or six men in each organiz-

ation, the best men, are the only ones who take any active part. Then on the selected field-day three men, the flower of the flock, run their hearts out to capture prizes. The very same men, because they are the best all-round men, compete in almost every event. In the races we see these men coming in at the finish nearly fainting with their exertions, to be caught in the arms of their backers and born off to be rubbed down, braced with brandy and lemons, and made ready for some other contest. At the end of the day the faces of the contestants look drawn and white and the field-day has been a wonderful success. The best men we have are thus made to compete to exhaustion, and the result is a lessening of the capabilities of the best developed men and no increase in the development of the others. Even if those who take part are not injured, what, pray, is the benefit to the command? These men are already developed as far as they probably ever will be, and all they need is a light healthful form of exercise to keep themselves in trim. The men who need training get none. Therefore, if the men who need training get none and the men who do not need it overdo it, the result is distinctly harmful. It is argued that field-days encourage the men to practice these sports among themselves, but this is not true. As I have said, it is only those who can already perform creditably who take any active part. No matter how well conducted, no matter how carefully planned, no matter what efforts are made to keep men from injuring themselves, no matter how many efforts are made to get large numbers of participants, field-days in their present form (borrowed from the colleges) are all the same in the particulars named. They are absolutely pernicious. To make them compulsory may look like energy on the part of a commander, but he is injuring his command without any least particle of corresponding benefit. They are not necessary as recreations. The other games suffice. In bygone times the only field-day for soldiers was the Fourth of July. Even then the sports were more laughable than violent, and the officers held somewhat aloof in dignity and reserve, and discipline, upon which I shall touch later, was unaffected. A commanding officer who double times his whole command around the parade-ground every morning may be criticized for not training his command by having field-days. But he is right. Double timing, calisthenics, musical drills, gym-

nastics, something to include the whole command, carefully regulated and limited, are the only forms of athletics which should be made part of the soldiers training. Even in this great care must be had. It must not develop as a fad or craze. The average soldier gets plenty of exercise. The trooper who grooms his horse twice a day, takes his turn in cleaning out the stables and at the other garrison fatigues, goes to drill, has exercises in horsemanship, is usually ready to turn into his bunk without any additional work. In the winter time moderate exercise in athletic drill may be necessary. Field-days, in addition to their other evils, are necessarily always held in good warm weather when the soldier is already getting plenty of work.

Field-days should be prohibited, except in the form I shall at present indicate; other athletic games should be allowed as recreations; physical drills for all should be had only when soldiers have not sufficient work in the performance of their ordinary duties and their ordinary training as soldiers. Constant practice in minor tactics will give the soldier plenty of exercise and leave little room or necessity for further care about his physical development.

There is difference of opinion about the above phases of athletics, and there is still greater difference of opinion about another phase—the effect on discipline. My experience has led me to believe that while, in some instances, an officer may take active part in athletics with enlisted men without apparent loss of discipline, nevertheless, the practice is a bad one and should be disallowed. But on field-days, whether officers actually compete or not, discipline inevitably suffers. I have seen many field-days and I have seen none where this statement does not apply. If an officer doubts this let him attend as many field-days as possible, bearing this phase of them constantly in mind. He will see officers coaching their men in familiar terms, sometimes actually hand rubbing the legs of a sprinter who expects to win honors and money prizes, sometimes patting a contestant on the back, or cheering wildly, or wrangling with other officers to their mutual loss of dignity in the eyes of their men. He will see the soldier spectators converted into a mob like that which ornaments the bleachers at a baseball contest between two country towns, forgetting themselves entirely and using, under the very noses of their officers, vulgar slang, coarse wit, pro-

fanity and even obscene remarks. It may be argued that in well-disciplined commands such things would not occur. But the point is that they do occur and even in well-disciplined commands no opening for such things should be allowed. I have seen these things occur with varying frequency in cavalry, infantry and artillery commands, and I have never attended a field-day that I did not come away with a feeling that discipline had suffered. This may be a serious reflection on the discipline of the army; but if our discipline allows such things to occur, then the opportunity for their occurrence should be taken away. I think it is not so much a reflection on the discipline of the army, as it is upon the American character. Everyone knows that the American is the hardest mortal on earth to discipline, and we should be all the more careful in avoiding opportunities for its relaxation.

Field-days in their present form are thus from every standpoint objectionable. As to making them compulsory it would seem that this is only a manifestation of the fad or craze which has come over us.

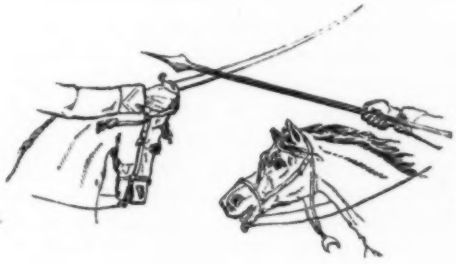
From the above remarks it would seem, unless read very carefully, that the writer is opposed to athletic training for soldiers. This is not so. I am not opposed even to field-days in the proper form and time.

The only possible object in training the soldier's body is to enable him to march and to endure fatigues incident to a campaign, and in garrison to keep him in health. If this be so, then marching is in itself the best training we can give. When the soldier is practicing this and has also the unavoidable fatigues incident to guard duty and the proper management of a post, it is unwise to add any athletic exercises except a short setting up drill to expand his lungs and take the crooks out of his back. This adds no fatigue, but is really restful in its effects. When, however, as often occurs, especially in the winter months, there is little to exercise the soldier's body, then a mild form of athletics in the gymnasium or outdoors may be given with profit. It should comprise something for all and not too difficult for any. Those who wish to practice, "at will," more difficult feats, may be allowed to do so. Then at certain intervals, to stimulate interest in the work regularly required, a field-day may be had. This should include only those exercises practiced by

all—running, jumping and military events. On these field-days the strictest discipline should prevail. While cheering may be allowed, the men must understand that this is a military event and not a country fair. Now, if the men themselves wish to have a field-day (and we will find this is seldom), in any form they please, just as they have a game of football or baseball, they may be allowed to do so and have as good a time as they can; but here no officers should officiate or be allowed to take part, except as spectators from a respectful distance, just as they often watch a game of baseball.

Some officers seem to think that a field-day in its present form is a training of their men. It is not. It is merely an expression of the physical condition of the best men of the command. Field-days should never be allowed, except as indicated above, and as a final wind-up of a certain period of training for a whole command.

The school boy, during his education at school and college, has had this athletic craze thoroughly instilled into his mind, and when he comes into the army it is natural that the effect of his education should be manifested in his ideas as a man. It is thus that the craze has attacked the army. There should be no such thing as a fad or craze in the army, and we should eliminate this one and confine ourselves, in the matter of athletics, to something reasonable and of unquestionable benefit to the service.



# FIELD ARTILLERY FIRE.

By Captain THOMAS RIDGWAY, Artillery Corps,
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THE rearming of the field-artillery with the rapid-fire piece, which we are promised by the Chief of Ordnance, will be complete by the last of October of the next year, has resulted in a change in the organization of the batteries, and will result in some radical changes in the manner of firing, in the kinds of fire and in the employment of artillery in action.

Incidentally, it may be noted that we, in common with all the powers except Russia that are putting the rapid-fire piece in service, are organizing the batteries with four pieces—Russia keeps to her eight-gun batteries. We have adopted eight as the number of caissons on a peace footing and twelve for war. The change in the number of pieces from six to four has been made for the following reasons: (1) the rapidity of fire of all six pieces could not be utilized; (2) the reduction in front insures better control in action; (3) economy of forces on a peace footing. The proper number of guns to an army corps is still an open question; in France the experts are discussing the relative merits of 144 or 120; in Germany General von Blume, an acknowledged authority, with a large following, is in favor of ninety-six, making no change in the number of batteries embodied in a corps, and thus obviating the manifest inconvenience of deploying such a mass of artillery.

The French are the pioneers in the matter of rapid-fire artillery, and have formulated firing regulations which, meeting at first with severe criticism on account of radical changes proposed whcih struck at the very roots of the principles of the old systems, have finally received the approval of artillery experts generally. Our Ordnance Department has made free use of French principles of construction in the new gun and its pointing apparatus, and it is understood that our methods of fire will be modeled upon the principles of the same school.

Rapidity of fire by construction is secured by:

1. Non-recoil carriage, allowing continuous sighting.
2. Movement of piece in azimuth without moving the trail.

3. Single motion, quick action breech mechanism.
4. Fixed ammunition, abolition of friction primers.
5. Firing device, lanyard remaining attached to piece.

The sights are attached to the cradle, and as this does not move on firing, the operation of sighting may be a continuous one, the gunner keeping the line of sight on the target or aiming point at all times; rapidity of fire thus depends on the time required for loading' Under the best conditions a rate of twenty shots per minute may be attained, in service it would probably be reduced to ten or twelve, possibly to eight. Elevation is given by a special quadrant with clinometer attachment to correct differences of level between piece and target; the range dial of the quadrant is graduated in meters, ours in yards. This leads to a subdivision of the laying, the gunner laying for direction, the operating number setting the quadrant at the designated range and bringing the bubble to the middle by the elevating hand-wheel.

A condition of rapidity of fire is an abundant supply of ammunition convenient to the pieces. This the French have secured in action by placing a caisson body one meter to the side of each piece; the first caisson body of the first reserve supply is on a flank and furnishes cover to the battery commander by whose side is the battery telescope; the second caisson body of the first reserve is fifteen meters behind the piece on the flank opposite the battery commander. All the personnel is sheltered behind gun shields or armored caissons, only a quartermaster's corporal, ten meters behind the battery commander, is completely exposed, and a bugler behind the corporal holding the captain's horse; all limbers drive away, only one horse remaining with the fighting line.

The object of the new firing regulations is to secure not the greatest possible fire effect in a given time, but to secure a sufficient effect in the shortest possible time, it being recognized as of more importance to economize time than ammunition; the commands and firings are so organized as to utilize rapidity of fire from the first ranging shots which are by salvo, and then opening against the objective with all possible rapidity, no time being lost by unnecessary commands for fuses, ranges or firing.

Next to rapidity of fire the most important characteristic of the new piece is its possibility of acting by surprise. In the endeavor to derive full value from these two characteristics the

new regulations contain radical changes in the principles of the administration of fire, both as regards ranging and firing at the objective.

Two methods of laying are prescribed, individual and collective: the first is the normal method of laying under the old regulations; the second is the normal method under the new.

Individual laying is used when the target is plainly visible and its flanks clearly defined, each gunner laying directly on the portion of the target assigned him, as would usually be the case in the decisive phases of action.

Collective laying involves the use of an auxiliary aiming point, the choice of which is limited only by the requirements that it must be plainly visible from the telescope and from each of the pieces and that it must be a conspicuous object not to be confounded with any similar object in the vicinity. Such an aiming point is useful, even in individual laying, in order that the pieces may be laid accurately on the target after the first shots, even though the target be obscured by the smoke of our own shrapnel; such a point would also be useful in obviating the difficulty of pointing out a tagret and subdividing it, a difficulty which at times becomes an impossibility.

Collective laying is used from concealed positions or when from the nature of the target it is not possible to divide it into sections and assign an objective to each piece. It is the normal manner of laying in the first stages of an engagement when it is possible to make all the necessary preparations without attracting the attention of the enemy.

Collective laying is made possible by the use of the collimateur, an optical sighting instrument permitting the choice of an aiming point anywhere on the horizon, and by its goniometer attachment graduated to milliemes, *i. e.*, 1-1000 of the range. In collective laying the elements of fire are the deflection allowance of a flank piece and the deflection difference. These two elements are calculated by the battery commander. Suppose the deflection difference is calculated for parallel fire: set the collimateur of each piece to read the deflection allowance increased or diminished by as many times the deflection difference as there are platoon fronts between it and the directing piece, the pieces being disposed with sixteen meters between axes, now traverse the pieces until the lines are on the aiming point.

With pieces so disposed the fire should be distributed over a front equal to that of the battery; whether it covers the front accurately depends on the correctness of the battery commanders' calculation. The four shots of a salvo should be evenly spaced, and if observation shows they are out, it is the duty of the chief of platoon to apply such corrections as will bring about that end. It is for the battery commander to order such correction as will cause the whole system to swing to right or left in order to cover the front of the target by parallel fires, or he may order corrections to close or open the fan, concentrating the fire by converging it on particular points or scattering it by divergence.

The fundamental principle in collective laying is the principle of deflection difference, and this in turn involves the idea of parallax which may be defined as the number of milliemes in a platoon front, supposed to be sixteen meters, as seen from the particular point; the calculation of the parallax then consists in dividing the platoon front by the number of thousands of yards in its range, the quotient being found to the nearest unit. In the calculation of the parallax of targets little difficulty will be met with, by reason of the slow changes in parallax at battle ranges, thus the parallax of all points between 2000 and 2650 yards is seven, with an error no greater than unity. It is in the calculation of the parallax of aiming points that the greatest error may creep in, but by using a range finder or a map, or when the distance to any point in the vicinity is known, it is found the errors can be kept within permissible limits. As may be seen, the principle of deflection difference enables us to find the parallax of an object when that of another is known, and knowing the parallax of an object its distance may readily be found.

Let us examine the theory of deflection difference.

Suppose two pieces with normal platoon front converge their fire on a particular point of the target; direct the collimateurs on the aiming point; it will be found now that the deflection reading of the second gun is equal to the deflection reading of the first increased by the excess, positive or negative, of the parallax of the aiming point over that of the target. Were there a third gun its deflection reading would be equal to the deflection reading of the first increased by twice the difference of parallax, and so on. In other words, the deflection differ-

ence between consecutive pieces so placed and converging their fire is constant. This is perfectly general for all positions of the aiming point, whether in front, on a flank of the line joining the sights, or in rear of the line of pieces, provided the angles are measured as the pointing apparatus is graduated, and that the parallax of the aiming point is negative for all positions in rear.

Suppose, instead of converging the fire, it is desired to dispose the pieces in parallel order so as to have them beat a front equal to the front of the battery, a normal condition of pitting one battery against another; here the lines of fire being parallel the parallax of the target becomes zero, and the deflecting difference is equal to the parallax of the aiming point. In case the aiming point is on the prolongation of the line of collimateurs, its parallax is zero, and the deflection difference for converging fire is negative and numerically equal to the parallax of the target. In case the aiming point is in rear of the line of collimateurs its parallax having passed through zero changes its sign, and the deflection difference for converging fire is then negative and numerically equal to the sum of the parallaxes of aiming point and target.

Another illustration of the use to which the principle of deflection differences lends itself is found in the case of a second battery taking position on the flank of a battery firing and opening on the same objective. It is not necesary for the commanding officer of the second battery to calculate the elements of fire. He orders the deflection allowance of his right piece from that of the battery firing, and the deflection difference for his right piece five times that used by the right piece of the first battery, because there would be normally five platoon fronts between corresponding pieces in the two batteries.

As stated above, ranging is normally by salvos or succession of shots fired with the same elevation in a determined order through the battery at the rate of one shot from each piece, the interval between successive shots being two or three seconds; Fire is opened by salvo at the estimated range and generally proceeds by jumps of 400 meters until a fork of half that depth is found to enclose the target. With a plainly visible target and good condition for observation the fork may be reduced to fifty meters, but this is exceptional. In some cases it may be possible to obtain the inferior limit only of the fork. If an enclosing salvo bursts, on striking, the correction is finished.

Verifying salvos are always required when the target is a material obstacle. They are not employed against troops at short range or when the last correcting salvo gives good range and direction. If the verifying salvo gives two or three shots over, that elevation is preserved for opening against the objective, otherwise the elevation is changed twenty-five meters and another verifying salvo fired.

Firing against the objective may be of the following natures:

1st. Progressive fire, consisting generally in the searching of a fork 200 meters deep, the initial elevation being 100 meters less than the inferior limit of the fork, each piece firing independently two rounds at each of four elevations varying by 100 meters, thus searching the 200 meter fork and two zones of 100 meters short and over in about forty seconds; when the front of the objective is such that the normal scattering of the fire will permit gaps in the objective, resort is had to a sweeping fire, each piece firing three rounds at each of four ranges with deflection differing by six mills, or three turns of the handwheel; for the first and third elevations of the series the sweeping is to the left, for the second and fourth the sweeping is to the right; thus in the progressive firing with sweeping each piece fires twelve rounds, this utilizes the utmost rapidity of which the pieces are capable. It may be noted that this nature of fire is essentially out of control of the battery commander who cannot from the independence of fire of each piece, observe the fall of projectiles for any particular piece, and is thus deprived of the power of correcting its fire at least during the particular series of forty-eight shots.

2d. Fire by *rafale* or by salvo at the command of the battery commander. Fire by salvo has already been defined and may be with or without sweeping. A rafale is a succession of shots from each piece without regard to order, fired with a single elevation and at a rate of two or three for each piece, depending on whether the firing is with or without sweeping, the successive elevations varying by one hundred or fifty meters at the option of the battery commander.

3d. Firing with a single sight elevation. This nature is used when the conditions for observation are good; it is used against material objects or bodies of troops that are hard to be shaken and against moving objects when the latter passes a point in which it has been possible to regulate the fire in advance. It gives the maximum effect with the minimum ex-

penditure of ammunition, but this is obtained at a sacrifice of time as the ranging has to be prolonged and the target enclosed in a shallow fork of fifty meters; the battery commander indicates in his command the number of rounds per piece; this nature admits of firing with or without sweeping and is independent of the order of the pieces in battery.

It is seen that of the different natures of fire, the salvo firing is the only one over which the battery commander maintains complete control in the administration of the fire of his battery, and with which he is able to apply the proper corrections as shown by the impact or burst of the projectile, an underlying principle under previous firing regulations.

Finally the French regulations recognize the principle of the economy of forces in action, prescribing that only enough batteries to accomplish the desired end be told off to open fire, while the remainder are posted in observation completing all preparation necessary to open fire in support of the pieces already in action or disposed so as to cover points on which an objective ls likely to appear, obtaining the elements of fire of these points, and leaving nothing to be done in the way of preparation until fire is opened at the word of command.

# THE TRAINING AND PERSONNEL OF VOLUNTEER TROOPS.

By Captain GEORGE D. SNYDER,
Late National Guard of Pennsylvania.

THE military policy of the United States may be said to be to make ready for war in time of war and not to do so in time of peace, as suggested by the Father of our Country. While it is true that we do make certain preparations in time of peace, they fall so far short of the complete preparations necessary to even commence a war with a second-rate power, that preparations for war in time of peace cannot be said to form part of the military policy of this country. The army we train and maintain in time of peace forms but a small part of the army we have always found necessary to create and train after the commencement of each war, and the officers we educate in time of peace are few compared to the officers we have found necessary to educate, or use without education, during a war.

As this has been the policy of this country in the past, and is likely to remain so in the future, we cannot rely on much greater preparations being made for the next war than have been made for the last, and the only thing to be done is to make such plans as we can to minimize the evils of this policy and to reduce the time necessary to make these preparations.

Recent wars have been short and sharp. The command of the sea may be decided shortly after the commencement, and this would mean for us that we could not make an adequate land defense in case our navy was defeated, or follow up our advantage in case of its victory, until we had improvised and trained an army.

In our next war we are likely to augment our Regular Army by volunteer forces as in the past, and the problem of how to make the most efficient fighting units possible in the shortest possible time out of the available personnel is well worthy of study.

This problem does not seem to have been satisfactorily

solved in the past, and our volunteers have generally received their training in the hard school of experience. With many of them their first shot has been one aimed at the enemy and their first long march one in the enemy's country.

The weak spot has been lack of careful individual training of the soldier. Our volunteer armies are mostly composed of infantry, and the essential qualities of an infantry soldier are practically the same to-day as in the time of Cæsar. Skill with weapons, ability to march and discipline will make an efficient infantry soldier now as then. The short sword has been replaced by the magazine rifle and the shield by the intrenching tool; but we have no modern invention to take the place of the bodily vigor and endurance necessary to carry a man through a long campaign, or that make unnecessary the discipline that can only be acquired by long training.

Although the use of volunteer troops in time of war has formed part of the military policy of the United States for generations, it is only recently that it has been authorized by legislation enacted in time of peace. Our new militia law* prescribes that all volunteer forces shall be organized as prescribed in the Act of April 22, 1898, which would require the organization in force during the Spanish War. This act also refers to units of the organized militia volunteering as a body, and evidently contemplates the appointment of the officers by the governors of the States, excepting in the case of United States Volunteers not accredited to any State.

Our new militia law is likely to work a vast improvement in our organized militia, but it is doubtful if its provisions will permit of much actual use of the militia as such in time of war, nevertheless it will be of great value as a training school for future volunteers. It can now be called into service for nine months, the idea being that in this time the volunteers can be organized and trained. As we have no reserve force from which to recruit the volunteers excepting the militia, it is likely that in organizing one force we will disorganize another, leaving us with no troops ready for immediate use excepting the Regular Army.

A study of our present law and our past policy makes it probable that our next war will be fought with armies composed of the following forces: 1. the Regular Army; 2, the organized militia; 3, the volunteers.

*Act of January 21, 1903.

The volunteers are likely to be of three kinds, (a) United States volunteers; (b) State volunteers composed of organized militia; and (c) State volunteers not composed of organized militia, and these will be found to differ largely in their characteristics and personnel.

The United States volunteers organized for use in the Philippines in 1899 were so unusually efficient that the statement has often since been made that State volunteers will not be used again, but as the only law we have ever had on this subject, in time of peace, contemplates the use of State volunteers this statement is hardly justified by the facts.

United States volunteers have certain essential differences from State volunteers, the principle one being in the manner of appointing the officers and in the number of the personnel with previous military training and the character and extent of this training. There are also marked differences in the attitude of enlisted men toward each other and toward their officers, due to freedom from local prejudices and jealousies and to the fact that the men have had no choice in the selection of their officers. Most of the field-officers are appointed from the Regular Army, the other officers being selected from those of more or less military training throughout the country, generally from former officers of the regular or volunteer forces, the organized militia and military colleges. It is to be regretted that political considerations play so large a part in the selection of these officers, for if they could be selected on merit in time of peace much better results would follow.

The United States volunteers organized in 1899 had a very large percentage of enlisted men with previous military experience, but it is not likely that this percentage can be equalled in the future, in a great war, if the organized militia are called out and if State volunteers are being organized at the same time. Some ex-soldiers of the Regular Army and some men with training in the militia can be counted on, but it is doubtful if more than enough men with previous training will be found to fill the quota of non-commissioned officers.

State volunteers composed of organized militia generally undergo such marked changes in personnel in changing from the militia to the volunteer service, as scarcely to warrant them being considered as the same organizations.

Most militia regiments in the past have consisted of eight or ten companies of fifty to sixty men, while the volunteer regiments are required to be of twelve companies of seventy-five to one hundred or more men; and as rarely over seventy-five per cent. of the strength of a militia regiment can be counted on to volunteer and pass the physical examination, each company of volunteers will scarcely have more than thirty-five to forty-five men with previous military experience. The officers are generally recommissioned in the volunteers without change, their appointment being due to their previous election as officers of the militia. This has the effect that the governor has no opportunity to appoint officers of the Regular Army even if he so desires, and if he has the opportunity and the desire he is limited by existing laws to one such officer to each regiment. The militia take with them all their local prejudices and factional feelings due to previous contests over the election of their officers. Nevertheless, some regiments have reached a considerable degree of efficiency, having a history and traditions, and under proper methods should develop very rapidly into efficient fighting units. Their principle defects are a lack of reliance on their officers, due to undue familiarity and to the election system of appointment, and a general disposition to consider their military service as a general lark or picnic on which they are to have as good a time as possible and do as little work as possible. This tendency may be remedied in part in the future by having the militia attend the army maneuvers instead of their State encampments with "Governor's Day" and the accompanying fuss and feathers.

State volunteers not composed of organized militia have generally the most to learn, and differ more largely in their characteristics in accordance with the military policy of the State from which they came and the conditions prevailing at the time of their organization. Such volunteers are generally organized because it is not the policy of the State to furnish its quota from the organized militia who volunteer as a body, because its quota is for more regiments than it has organizations of the militia, or because the organized militia has been exhausted in filling previous calls. The percentage of men with previous military experience varies greatly with the above conditions, but it is generally lower and poorer in quality than in the other kinds of volunteers. The officers

are either selected for political reasons, or the men are permitted to elect them; but regular officers are frequently appointed to such regiments, but this is not always a recognition of an officer's merit, but of his political friends.

In studying the probable efficiency of our volunteers at the beginning of a war the following facts should be borne in mind: first, that however efficient militia may be as militia, if it is not used as such, but is asked to volunteer, the results will be regiments partly disorganized with from fifty to seventy-five per cent. of new men to train and equip; second, that the superiority of United States volunteers is not due to the fact that their officers are appointed by the National instead of by the State government, or that such appointments are made without regard for political consideration for such is not the case, but this superiority is due to the fact that most of the field-officers are appointed from the Regular Army, that such troops have a greater percentage of former officers and men of the Regular Army and that whatever the defects of the method of appointing the officers it is an improvement over appointments based on a popular election by the men the officers will be called on to command.

The principal resources in the United States from which the personnel of our volunteer troops come are: first, former officers and men of the Regular Army; second, former officers and men of the volunteers; third, officers and men of the organized militia; fourth, the military colleges where instruction is given by officers of the Regular Army; fifth, the rifle clubs organized under recent legislation and sixth, the enthusiastic and patriotic young men without any military training whatever.

The officers and men of the Regular Army have had the most thorough and practical training and are likely to prove the most efficient, and it is strange that no greater encouragement is given to those from this class to return to the service. Former officers of honorable record have had great difficulty in having their services accepted, and being ignored at the War Department have gone from State to State in endeavoring to get an opportunity to serve. Considering the annual output of the Regular Army very few enlisted men volunteer in time of war. Although most of such enlisted men are competent to be non-commissioned officers, and many to be commissioned officers, the fact that they have

been trained in the Regular Army and are competent to fill such positions helps them but little in getting such appointments.

Our new militia law* provides for an examination whereby those with service in the regulars, volunteers or militia, and those educated at our military colleges can qualify for a commission as an officer of volunteers, but very few have thus far applied for this examination owing to the small inducements offered and the somewhat severe age limits prescribed for each rank.

An enlisted man of the Regular Army can also, under the provisions of paragraph 147 of the army regulations, have the notation made on his discharge that in the opinion of his commanding officer he is fitted to be an officer of United States volunteers; but this does not insure him being so commissioned. The above two measures are the first we have made toward utilizing the output of the Regular Army and securing a reserve list of officers in time of peace.

The former volunteers of one war have not been of much use to us in a succeeding one, owing to the lapse of time between the two and to the fact that they have devoted themselves to their civil persuits and have not had an opportunity to keep in touch with military affairs. If, however, at the end of a war we would select the best of the volunteer officers and give them an opportunity to continue their military training, they would be of great service if war should come again in their time, and if not they would assist in handing down our military traditions and in training their successors.

The organized militia is our most valuable resource in organizing a volunteer army, as the officers and men from this class are the most numerous of those who have any training at all; their training, as far as it goes, is generally practical, and a large percentage of them can be relied on to volunteer. The officers are generally good drill-masters and in many States have devoted much time to rifle practice. Their weakness is a lack of knowledge of administration according to United States Army regulations and a lack of practical tactical training. We should not forget that the militia is the only reserve we have, that it is susceptible of great improvement at a slightly increased expense, and that its mem-

*Act of January 21, 1903.

bers devote much time and money to their military duties, standing ready to serve at any time and are therefore entitled to every consideration when volunteer appointments are being made.

Our military colleges, where instruction is given by officers of the Regular Army, have so far not proved a very valuable resource. This is not due to any defects in the character of the instruction, but largely to the fact that our government after providing the instruction fails to provide a means whereby the graduates from such institutions can round out and develop their military talents, or to place them on any better footing as regards appointment to a commission than those without such instruction. Comparatively few from this class become members of the organized militia, as they usually must enlist and trust to the election system for advancement, and similar conditions discourage them from enlisting in the volunteers. Unless some way is devised for availing ourselves of the military instruction these young men have received we would receive a better return for our money if we spent it in providing a better system of instruction for the National Guard.

The rifle clubs now being encouraged by recent legislation are another resource that are not likely to give a proper return for the money expended on them. To perform the duties of a modern infantryman against an organized enemy requires something more than the mere ability to shoot with accuracy. Before a man can make use of his skill as a rifleman in battle he must know how to live in the field under the conditions that exist in war, preserving his own health and not endangering that of his fellows, be able to transport himself and his equipment over long distances with his own legs, know his duties as a unit in the tactical organization of which he forms part, and how to present the minimum target to the enemy. In short, he must be a disciplined soldier, and the mere teaching of a man to shoot does not make such a soldier of him. We also have no means of knowing how many of the men we train to shoot in time of peace will come forward in time of war to receive the remainder of the training necessary to make soldiers of them. The great advantage in expending money in training men in the Regular Army and organized militia is that the training is all around, particularly in the former, and the men being trained

have entered into a contract to serve for a term of years, so that we receive the benefits of their training in case of a war occurring during this term and experience has shown that many of them return to the service in the event of war occuring after this term.

Our last and most numerous resource from which to recruit our volunteer armies is the great body of enthusiastic, patriotic young man without any military training whatever, coming from all parts of our country and from all walks of life. This is good raw material for the making of soldiers, but it will take time to turn out the finished product, and these young men will be very much disappointed if they are not allowed to grapple with the enemy at once, but are required to go through a course of training preparatory thereto.

The size of the volunteer armies we are to raise in the future is likely to vary between 30,000 in case of an insurrection in our insular possessions or war with a minor South or Central American Republic and 1,000,000 men in case of an attack by a world power. In other words we may be called on to increase our army from one-half to ten or fifteen times its normal strength. Almost any war we are likely to get involved in will require at least 500,000 men and plans should be made for training at least this number.

Our problem is very largely affected by the kind of volunteers we organize and by the number we call for at any one time. In the past an attempt has been made to estimate the number of men required at the beginning of a war and to call for this number. This has generally resulted in an underestimate and has been followed by additional calls for troops at irregular intervals, as many as half a million men having been asked for at one time. To provide for the muster, subsistence, clothing, arming, equipping, training and appointment of officers for such a large number of troops at once is a difficult task for an administrative staff organized to provide for our small peace-time army only, to handle, as well as being a heavy strain on our resources. As it is very difficult to estimate in advance the number of troops that will be required, it would seem to be preferable to ask at the beginning of a war for no more troops than can be properly equipped and trained with the resources immediately available, and having provided an organization for the train-

ing and supply of this number, to ask for a certain number of men each month until it was evident that no further troops will be needed. This would enable the supply and training to keep pace with the recruiting and would furnish a steady stream of recruits to make good the losses in the regiments already in the field, and the expansion of the army would be gradual by the addition of new regiments at regular intervals of time. This method would be sure to give better results than the asking for such great numbers of troops at a time that proper care cannot be taken in their muster, the selection of their officers and their training and equipment, to be followed by an interval when we refuse to accept the services of those who volunteer and then to be followed later by the offering of large bounties for men to enlist. This method has a further advantage in case of a long war in that the term of enlistment of large numbers of men would not expire at one time.

If we are still to ask for State volunteers, the relative number of State and United States troops should be determined in advance. If at the beginning of a war we apportion among the States a call for a number of volunteers, based on the number of organizations in the organized militia at full strength, this will practically exhaust the available military personnel of the States and this should be the maximum number of State volunteers accepted. The number of United States volunteers organized at first should be the number of units necessary to give the armies to be placed in the field the proper proportion of the several arms, and as the State volunteers will be mostly infantry, the first United States volunteers would largely be cavalry, field-artillery and special troops such as engineers, signal and hospital troops. Troops organized thereafter should all be United States volunteers, which would place their recruitment, organization, training and the appointment of their officers all under a central authority. This would prevent the Regular Army, United States and State volunteers from entering into competition for recruits, and would insure a certain number of officers in each regiment being from the Regular Army or from the volunteers who had already proved their ability in the field.

All the defects that have manifested themselves in our past methods of training volunteers are evidently due to the fact that a carefully thought-out method of doing this

work has not been worked out in time of peace. Our volunteer troops have generally been assembled in great camps shortly after their muster-in, which were supposed to be camps of instruction, but these camps have had no special organization or equipment for this purpose.

The organization has been merely that of an army corps or division with an administrative staff only and no special staff of instructors, and the few officers competent to act as instructors have been too much overburdened with administrative work to do so. The great majority of volunteer troops that entered the service during the Spanish War left the same without any training in rifle practice whatever without increasing their marching power or any thorough training in battle exercises or in the service of security and information, and in many cases those regiments that had been in the organized militia were in a poorer state of discipline than before they entered the service.

As regards size it would seem that these camps should be small if we had sufficient officers to supervise the instruction, but as the number of officers that can be detailed to this duty is small we cannot have many such camps, so of necessity they must be large. To give them capacity for training about 30,000 infantry, or about enough for an army corps, would likely be the best arrangement under the circumstances.

To find locations satisfactory in all respects will prove difficult. That they should be the most healthy obtainable goes without saying. They should be well drained, with a water supply above suspicion, along a stream or lake to admit of bathing, with good railway communications, diversified topography, abundant facilities for rifle practice, and if not of sufficient size to admit of long marches, there should be secondary camps at about ten, twenty and thirty miles from the main one on which to bivouac.

Each such camp should have a staff of instructors separate from the administrative staff. There should be a general officer of high rank in command with a chief of staff and two assistant chiefs of staff, one in charge of the administrative staff and the other in charge of the staff of instructors. The number of instructors will necessarily be limited and in a camp of this size it will be impossible for this limited number to actually give instructions themselves but there should be

a sufficient number to carefully supervise the instruction, inspect the work done and give lectures and general instruction to the officers.

The troops should not be organized into larger units than regiments, excepting for administrative purposes, until the individual instruction has progressed far enough for the officers and men to intelligently perform their duties in brigade and division exercises.

The instruction should naturally be divided into the general instruction that should be given to all and the special instruction to be given to officers and men with special duties to perform. This for infantry would mean that all should be taught to shoot, to march, to drill and be disciplined, while staff-sergeants, cooks, etc., should receive instruction in their special duties. Likewise all officers should have a knowledge of the above, of administration and receive a certain amount of tactical training, while company officers should receive special instruction in company administration, regimental staff-officers in staff administration, and field-officers in the administration and tactical use of larger units.

The prevalent idea in instruction for officers in the military schools in our army is to treat all alike, giving a broad and thorough training to all and not to encourage officers to specialize. In view of the great differences that exist in the extent of the military experience and previous education of officers of volunteers this is not applicable, and they should be encouraged to specialize, and those having acquired a special knowledge in any subject in civil life should be given opportunities to learn the military application of their trade or profession.

Considering the many things that our volunteers have to learn they should be kept at these camps as long as possible and no time should be wasted, but as our military emergencies may compel us to make use of these troops, no matter how short their training has been, an endeavor should be made to teach a few essentials as soon as possible. It is doubtful if much of value can be learned in less than three months, and as circumstances are not likely to permit us to devote more time than this on the first troops a minimum course of twelve weeks is suggested. To endeavor to make use of troops with less training than this is likely to invite disaster.

The slow progress made by our volunteer troops in acquiring their military instruction in the past has largely been due to the following: first, a lack of competent instructors; second, a lack of a prescribed course of training; and third, a lack of a strong incentive for both officers and men to acquire this military training. The following course of training for infantry is merely a suggestion as giving a rough outline of the ground to be covered. Methods of obtaining a greater number of competent instructors and of creating stronger incentives to acquiring military proficiency will be discussed hereafter. Such a course should be planned so as to exercise the soldiers in duties as similar as possible to those they will be called on to perform in campaign, and in so doing to endeavor as far as possible to have them acquire the habits of discipline and to gradually harden and toughen them physically so that they will be better able to stand the bodily strain of warfare. In order to make satisfactory progress each day should have its allotted task, and commanding officers should be held to a rigid accountability for the progress and efficiency of their commands. To ascertain the relative progress and secure uniformity, Saturdays should be devoted to an inspection and review of the week's work. The suggested course of training is as follows:

FIRST WEEK.

Careful inspection of each organization on its arrival at camp, to ascertain extent of equipment, number of officers and men with previous training, and extent of such training, physical condition and knowledge of camp sanitation, instruction of officers in standing orders of camp, character of course of training with lectures on general principles of close and extended order drill and guard duty.

SECOND WEEK.

*Drill.*—Company in close order, squad in extended order, setting-up drill.

*Rifle-Practice.*—Nomeclature, care and cleaning, tripod-sighting drills, and individual range firing by men with previous experience.

*Marching.*—Two five-mile marches by company with partial equipment.

*Officers.*—Instruction in camp sanitation, military correspondence, returns, reports muster, and payrolls.

Instruction of cooks in use of field rations.

THIRD WEEK.

*Drill.*—Battalion in close order, company in extended order, bayonet exercises.

*Rifle-Practice.*—Position and aiming drills, gallery practice. Selection of coaches from experienced men.

*Marching.*—One five-mile march and one eight-mile march by battalion with full equipment, company acting as advance and rear-guard.

*Officers.*—Instruction in company as advance and rear-guard and on outpost duty, map reading, conventional signs, property accountability, instruction of men in individual use of field rations.

FOURTH WEEK

*Drill.*—Regiment in close order, battalion in extended order, outpost duty

*Rifle-Practice.*—Estimating distance drills. Individual range firing, 200 and 300 yards.

*Marching.*—One ten-mile march and one twelve-mile march by regiment, battalion acting as advance and rear-guard.

*Officers.*—Quartermaster's supplies, clothing accounts, battalion in advance and rear-guard and on outpost duty, map reading, scales, hasty intrenchments.

FIFTH WEEK.

*Drill.*—Regiment in extended order, outpost duty.

*Rifle-Practice.*—Individual range firing, 500 and 600 yards, skirmish firing.

*Marching.*—By regiment a twelve-mile march, bivouac and return next day; hasty intrenchments, construction of lying and kneeling trenchs.

*Officers.*—Subsistence supplies, regiment in advance and rear-guard and on outpost duty, map reading, orientation.

SIXTH WEEK

(Regiments to be brigaded.)

*Drill.*—Brigade in close order, outpost duty.

*Rifle-Practice.*—Completion of marksmans' course, instruction practice and commencement of record practice.

*Marching.*—By brigade a fifteen-mile march and return next day, regiments acting alternately as convoy.

*Hasty Intrenchment.*—Construction of standing trenches.

*Officers.*—Minor tactics, the infantry attack, summary courts, road sketching.

SEVENTH WEEK.

*Drill.*—Brigade in battle exercises, night attack in close order.

*Rifle-Practice.*—Continuing instruction and record practice marksmans' course, sharpshooters' course for advanced men.

*Marching.*—By brigade a twenty-mile march and return.

*Officers.*—Minor tactics, flanking attacks, regimental and garrison courts, reconnaissance.

EIGHTH WEEK.

*Drill.*—Brigade acting with other arms, advance and rear-guard action.

*Rifle-Practice.*—Marksmans' and sharpshooters' course, company volley firing.

*Marching.*—By brigade, a night march of twenty miles and return on second day.

*Officers.*—Minor tactics, night attacks, general courtsmartial.

NINTH WEEK.

(Brigades assigned to division.)

*Drill.*—Division in battle exercises.
*Rifle-Practice.*—Marksmans' and sharpshooters' course and expert riflemans' test.
*Marching.*—A forced march of twenty-five miles.
*Officers.*—Minor tactics, infantry supporting artillery. Martial law.

TENTH WEEK.

*Drill.*—Division in battle exercises, acting with other arms.
*Rifle-Practice.*—Same as ninth week.
*Marching.*—By division a twenty-mile march, construct kneeling trenches, bivouac and return next day.
*Officers.*—Infantry and cavalry acting together, law of hostile occupation.

ELEVENTH WEEK.

*Drill.*—Division maneuvering against a represented or outlined enemy.
*Rifle-Practice.*—Same as ninth week.
*Marching.*—A forced march of thirty miles.
*Officers.*—The three arms combined, the law of war.

TWELFTH WEEK

General inspection of troops in course of training, certifying of regiments as competent to take the field. Transfer of officers and men to recruit camps, who are not up to the standard of efficiency. Discharge of those who have developed physical or other defects that make it evident that it will not be profitable to return them.

Similar courses can readily be devised for the other arms of the service.

It is to be hoped that before our country is again involved in war that we will have so changed our military policy as to make the training of troops in time of war unnecessary; but as this is not likely to be brought about in the near future, as a common-sense people we should enact such legislation as will enable us to do this work as quickly and as efficiently as possible. We should therefore endeavor to obtain legislation authorizing the purchase and equipment of the necessary camp sites, providing for the necessary instructors and for the greater encouragement of military study in time of peace, and placing a greater value on military ability by giving the preference to it in making appointments in time of war.

Our best instructors are unquestionably the officers of the Regular Army, and by appointing such to higher rank

in the volunteer regiments we not only get the benefit of their skill as instructors, but as commanders, as well, after the period of instruction is past. There is a limit, however, to the number of such officers available for this duty on account of the large numbers of details that must be made for other purposes in time of war. In war time our regular regiments have more men and less officers with the colors than in time of peace, and yet this is the very time they should have a full complement.

At present we have no fixed method of selecting the officers to be appointed to the volunteers. Those so appointed have the benefits of increased rank and pay while their brother officers remaining with the regiment have none of these benefits and an increased amount of work. It would therefore be fairer to all concerned if a plan were adopted for appointing the officers to the volunteers by selection or seniority, and giving temporary increased rank to those remaining with their regiment who are exercising higher command, and then to give the regiment a full complement of officers by making volunteer appointments to the subaltern grades from a class to be trained for this purpose in time of peace, and by appointments from the ranks.

If this plan were adopted a much greater number of regular officers could be gradually appointed to the volunteers as those with temporary rank gradually acquired experience.

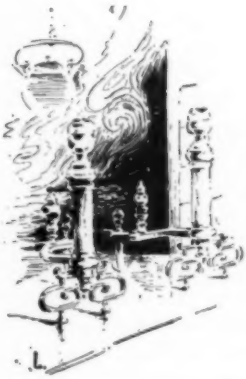
Another step to add to the number of instructors would be to give greater inducements to former regular soldiers to enlist in the volunteers. This can best be done by recognizing the fact that soldiering is a trade and that those who served a term of years in learning it are worth much more than an untrained apprentice and that their wartime pay should be at least twice the ordinary peace rates.

In order to get the best results in such a course of instruction strong inducements should be offered to both officers and men to acquire as much proficiency as possible. To this end officers who have not passed a qualifying examination in time of peace should not be given their commissions until they have completed this course of training and passed a satisfactory examination. If State volunteers are authorized, the governor's appointment of officers should be subject to the same conditions.

Enlisted men should be classified as regards pay accord-

ing to their previous experience. Those with no previous training should only receive the ordinary peace time pay of their rank, and upon proving their ability to shoot, to march, to perform the many other duties of a soldier in the field, and upon having a clear record in regard to discipline they should receive the same rate of pay as a trained soldier from the Regular Army.

We all know that if we postpone the training of our soldiers until war has commenced that the work will not be as well or as thoroughly done as in time of peace, that it will require more men to accomplish a given end and that it will cost us more both during and after a war, but as this is the established policy of the country, all we can do is to make such plans as we can to minimize its evils, trusting that a kind providence will bring us safely out of our difficulties in spite of the military maxim that the Lord is on the side of the heaviest, and presumably the best-trained, battalions.



# THE INDIVIDUAL INSTRUCTION OF THE SHOT AND THE EDUCATION OF THE NERVOUS SYSTEM.

By Captain Leon Moreaux, Superintendent of the Rennes School of Shooting, and Dr. Gruet, Major and Surgeon

(In the "*Journal des Sciences, Militaires*," March, 1905.)

Translated by Captain HERSCHEL TUPES, First Infantry, for the General Staff, U. S. Army.

## PRELIMINARIES.

INDIVIDUAL instruction is the basis of all small arms practice.

But differences of opinion arise when the surest and quickest method of training a good shot is to be determined.

It appears to us that psycho-physiology must supply the interesting elements in the solution of the problem.

The most ordinary individual soon succeeds in assuming a correct position for firing, in holding his piece properly and in aiming correctly. But most often the pupil obtains results of only little satisfaction in carrying on his target-practice according to the preparatory exercises and the usual theoretical instruction that he has received; he soon becomes discouraged, and he thereafter considers shooting as a disagreeable drudgery. Is not this the history of a large number of pupils, especially of young soldiers, and even of some officers?

We believe that it is possible to avoid these painful beginnings, that it is possible to make the firing attractive and to make good shots of all the men. We are demonstrating the proof of this assertion almost daily at the School of Shooting at Rennes with men of all conditions and ages. We have convinced the most prejudiced of minds, and even the incredulous have become apostles and propagators of the method. This latter is based entirely upon *the education of the nervous system*.

However simple this idea may be, it does not seem to have

been brought out up to the present in instructions in target-practice.

If the pupil shoots poorly it is not, generally, becuse he takes a faulty position; it is not because he holds his piece improperly; it is not because he takes poor aim; it is not, as some freely assert, because the movement of the trigger finger is transmitted to the shoulder. In aiming, particularly, the oscillations of the piece are not usually so extended that they can of themselves prevent the projectiles attaining the target. This is an important point to consider, for the majority of riflemen attribute their lack of success and their inaptitude in shooting to the tremor of the hand. This is an important idea which it is important to eradicate.

If, in place of a discouraging check, the first lesson leaves the beginner with the impression, based upon good results, that he is well qualified for shooting, he will await with impatience the occasion for the next practice and he will acquire the confidence which success and gratified pride produce when gained by perseverance.

PRACTICAL STATEMENT OF THE METHOD.

*Rifle-Practice.*—We will take rifle firing first in order that the exposition of the method may be facilitated.

The instructor places the pupil in front of a target 200 yards distant, the target measuring one meter in diameter and being divided into two zones (the military target) and satisfies himself that the pupil knows how to take the line of sight correctly. For reasons which we will point out later the first lesson must be given in the prone position. The instructor loads the piece himself. In the breech he places a dummy cartridge having the appearance of a ball cartridge, and gives the following directions:

"You will exert a gradual and continuous pressure upon the trigger; this pressure will be progressive as long as the piece continues well aimed. When the line of sight ceases to be directed upon the point aimed at, your finger will maintain the pressure acquired without increasing it; the progressive movement of the trigger will be resumed only when you will, after a few endeavors, have the correct pointing of the piece in hand."

"In no case will you be preoccupied about provoking the escapement of the trigger for the purpose of firing the piece,

which must be fired unwittingly, so to speak, and which must be considered as an incident in the course of your work."

In spite of these directions a jerking movement of the body quite often accompanies the pressure on the trigger, the entire body has shared in the movement and the bullet would have gone in almost any directon if the piece had been loaded. The pupil is aware that he has made a jerking movement, which is not confined to the finger, but is only a participation in a general movement of the body and which, for this reason, is improperly called a "*coup de doight.*" The instructor draws the attention of the other pupils to the error, they have themselves noticed the error and they have prepared themselves in advance to react against the impulse of their nervous systems. When they shall take the lesson in their turn the ease with which they will acquire the correct trigger pressure will depend upon how well they will have observed the mistakes of the others. The trial is repeated as often as the conditions require. By degrees the rifleman masters the displacements of the piece which he has caused. After a series of trials, at least ten, varied according to the subject, he finally entirely suppresses the jerking movement which displaces the piece when the trigger is pulled. At this moment a ball cartridge is placed in the piece in the same manner as the dummy cartridges. The pupil believing that he is to continue firing dummies exerts the correct pressure upon the trigger, the piece is fired, the bullet is well placed; it is generally a center. This result, which obtains at least nine times out of ten, causes the rifleman to be agreeably surprised. This excellent impression must remain with him. The first lesson is ended.

The instructor directs the pupil to practice the firing from time to time, cautioning him to aim correctly and to apply the precepts which have just been given him; he advises him to ponder upon all the phases of the lesson, upon all the instructions that have permitted him to attain this happy result.

If, instead of dealing with an ordinary subject, we have to instruct a very nervous man or one of but little intelligence, if we ascertain that he does not exert the pressure upon the trigger in the manner required, we will have him quit his piece without firing a loaded cartridge. We now interrupt the drill for a few minutes. Rest calms the ex-

citement of the nerves. We give new explanations to those who appear not to have understood the theory of the pressure of the trigger finger upon the trigger by causing them to follow the following demonstration. We place the pupil in the standing position and say to him: "Let us suppose for an instant your body represents the trigger; we are going to press gradually against that trigger while we will suppose you to be placed on the prolongation of a certain line; we will maintain the pressure but without increasing it as often as your body shall depart from this line; when you shall again be placed upon the prolongation of this line we will increase the pressure until you lose your equilibrium. The loss of equilibrium in these cases represents the escapement of the trigger when you exert pressure upon it according to the principles just described."

This somewhat rude demonstration is better for some intellects than the clearest of explanations for it renders a better account of what a difference there is between the successive pressures exerted upon the body of the man (or the trigger) up to the loss of equilibrium (the escapement) and the sudden pressure or jerk by which he would have been able to have provoked the fall, or the escapement of the trigger.

There are other useful means. Sometimes we employ the following:

The pupil aims, the right hand grasping the small of the stock without placing the finger upon the trigger. The instructor makes sure that the line of sight is well taken, and that the piece no longer oscillates appreciably. At this moment he presses the trigger himself and determines the moment for firing the shot unknown to the rifleman, and the bullet is again well placed. With a little practice it is easy to discover the instant when the line of sight is well taken, without having recourse to the pointing mirror.

It is important that the pupil be drilled with a piece so adaptedas to increase the chances of his obtaining good results immediately. It is necessary that he be impressed that he is naturally a good shot; whence the necessity for placing him in the best way possible for attaining this end. Another not less important recommendation is that

all lessons must be of short duration. Physical fatigue or mental weariness must be guarded against.

The succeeding lessons are given in the same manner, that is by using empty cartridges at first and then loaded ones. The instructor loads the piece with a ball cartridge every time that he judges the chances are that the rifleman will exert a correct pressure upon the trigger. He afterwards decreases the number of dummy cartridges, increasing by a like number the loaded ones, according to the more or less rapid progress of the pupils.

*Revolver Practice.*—The instructor places the young shot before a target, five meters distant, which is thirty centimeters in diameter and is divided into two zones. He ostensibly loads the revolver with dummy cartridges. As in rifle firing, he directs the pupil to think exclusively of exerting a pressure upon the trigger while the arm is correctly pointed; to maintain the pressure without increasing it when the line of sight deviates from the point aimed at, to not be concerned at any moment about the possible escapement of the trigger; the whole body has participated in this movement and the shot would have been bad had the revolver been loaded. The exercise is repeated until the man becomes indifferent about the escapement of the trigger, leaving him always unaware if the cartridge be loaded or not. This point is important, because it is in the exercises with dummy cartridges that the pupil most easily perceives his mistakes and by the use of his will prevents the jerking movement which causes the deviation of the arm. By degrees the amplitude of the movement decreases until it becomes nothing. At this moment the instructor cocks the mechanism upon a loaded cartridge, unknown to the man firing, who continues the exercise without being impressed by the possible discharge. The shot is fired and nine times out of ten, as in rifle firing, the shot is well placed. As with the rifle, the lesson must terminate with a good result. The pupil will all the more willingly reflect upon the different features of the lesson the more that he is astonished at the success of his shooting. The succeeding lessons are given in the same way, that is, by using dummy cartridges, then ball cartridges varying in number according to the more or less rapid progress of

the shot. The results must invariably be good unless the instructor be at fault.

At the beginning care will be taken not to fire several ball cartridges consecutively, because the projection of the ball and the noise of the discharge result in exciting the nervous system of the new shot. The progress of the instruction should be more or less rapid, and it is left to the instructor to determine from his own observation and judgment the moment the pupil is in a state to practice with ball cartridges exclusively. In ordinary cases, with subjects of average ability, three or four exercises are sufficient to obtain a satisfactory result, that is, to place all the bullets within a circle of five centimeters radius from a distance of fifteen meters.

This result having been obtained with a gallery pistol, the target is placed at the twenty-meter range, and as soon as the pupil succeeds in placing a series of six shootswithin the circle just described, the instructor begins with the service revolver. The target is again placed at fifteen meters, then at twenty meters, and in two or three drills the pupil succeeds in placing all the shots in a target fifteen centimeters in diameter and can be considered a good pistol shot.

Experience has shown us that the progress is much more rapid if they use an accurate gallery pistol than if they begin at once with a service revolver.

### BASIS OF THE METHOD.

The method which we advocate is supported by hundreds of experiences which are renewed almost daily at the shooting school at Rennes. A practice which gives such uniform results, borne out by the success of the pupils of the Rennes school at national and international competitions, must have a solid foundation and rest upon a principle that is important to be set forth.

The poor shooting of the pupil is not generally due, as we have said, to incorrect aiming nor to the tremor of the hand while aiming; the new shot very quickly succeeds in aiming well and in minimizing the amplitude of the oscillations.

If you observe the inexperienced man as he presses the trigger to fire his piece you will notice a sudden, jerking, con-

vulsive movement, not only of the finger, but of the entire body. What is the nature of this movement and what is its cause? It is classed as a "reflex" movement. We are now obliged to make an incursion into the domain of physiology.

A reflex is a responsive movement determined by the excitation of a peripheric nerve. Sneezing is a reflex; the movement of the head and shoulders caused by the firing of a cannon is a reflex. In those movements the spinal marrow is the reflex center. The peripherical excitation is transmitted to the cells of the marrow which reacts by a motive excitation. The higher nervous centers exercise a governing action over the medullary centers; they diminish the excitability of the spinal marrow, and consequently, the reflex movements. The will, the seat of which is in the higher nervous centers, can of itself prevent certain reflex movements, such as coughing and sneezing.

In the particular case which concerns us what is the provoking cause of the reflex which leads to the displacement of the arm and of the entire body?

In the first place, there is the phenomenon of auto-suggestion united to the thought of the detonation and of the recoil of the piece. A good proof of this is that the pupil suppresses the reflex when he is to fire, or believes he is to fire, with a dummy cartridge, but that it will reappear when he knows that he is to fire with ball cartridges. So let us caution the pupil to not think of the discharge, but to think solely of exerting a pressure upon the trigger in the manner indicated above. In this way the discharge takes place without the momentary volition of the shot; when this is so it is quite certain that the bullet is well placed in the central zone.

Lastly, if the man intentionally exerts a sudden pressure upon the trigger this method of procedure favors the production of the reflex. In fact, it is demonstrated that the abruptness and suddenness of the peripherical excitation promotes this same effect.

Physiology teaches us, besides, that the reflex movements are subjected to certain laws. They first irradiate transversely (law of symmetry), then longitudinally in the homologous parts; in the end they are generalized when the excitation is intense and very sudden. These laws explain the movements that we have noticed in the superior members and in the whole body of the new shot. In practically no case can it happen

that the movement of the trigger finger will be transmitted directly to the shoulder. We have the proof of it in this fact, that the shoulder and the whole body remain motionless when the pupil believes that hetis using empty cartridges. The movement which causes the discharge evokes an idea of detonation and of the recoil of the weapon, and this idea causes a reflex movement.

In this drill, as in all others, habit leads to automatism, which is the object of the practice. In order to attain it rapidly, one must divert the pupil's attention from the idea which causes the mistake to be avoided. This idea is *the intention of discharging the weapon.* It is necessary to convince him that he must think exclusively of exerting a gradual and sustained pressure upon the trigger, that he must concentrate his whole attention upon this point without being preoccupied about the discharge of the weapon. All the instruction must be given with this object in view.

### THE RÔLE OF FATIGUE.

We have pointed out the benefit of short lessons. We will now discuss the point which, in our opinion, is of the chief importance.

The effect of fatigue has been discussed and variously interpreted on occasions of rifle matches preceded by more or less extended marches. For our own part, we have had occasion to note the result of an experience of this kind.

Twenty soldiers were required to practice after having made a march of fifteen kilometers. The rate of marching was very rapid. The occasion was an eliminative test in long distance marching, organized by the periodical *Le Matin.* At the end of the march the soldiers were wet with perspiration, and and including the time necessary to change clothing, we had to commence firing only one-half hour after arrival. The general results of the practice under these conditions were very satisfactory. But it must be stated that it took place with men already trained in shooting and marching. The one conclusion to be drawn from these facts is that with well-trained men general fatigue has no adverse influence upon the aptness in firing provided it does not exceed a certain limit. In fact, we know that moderate fatigue tones up the nervous system.

Upon the other hand, excessive fatigue has an enervating and depressing effect, for it favors the development of the

reflex movements. In order to better comprehend the influence of fatigue upon the production of these movements, we will borrow a few pathological examples. If, for instance, we consider epilepsy, which is a malady that appears to be the extreme of reflex, we see that a wise method of training delays the convulsive attacks, while the abuse of physical exercise increases their frequency. The muscular contraction is the result of pressing fatigue to the extreme limit. The common idea extends only to the belief that the greater the fatigue the more must the will be called upon to suppress the momentary contracture.

Now, as we see that the reflex movements are the usual cause of the beginner's poor shooting, we must make him use his will to suppress these movements, and the conclusion to be derived is; one must avoid fatiguing the pupil.

We but mention the need of training the man in raising and holding the piece at the shoulder, a training of which the usefulness is recognized by all. But besides this very manifest cause of lassitude, there are others that cannot escape the attention of the instructor. In the first place, there is psychical fatigue due to thc lesson being prolonged, and there is the emotional fatigue due to the fear of the recoil, the remarks of the instructor, the comments of spectators, etc. Indeed, any prolonged or violent sensorial excitement causes fatigue. The instructor must note these and many others, such as external heat, excessive thirst, etc., which enervate even trained shots. The instructor must, therefore, allow frequent rests, give short lessons, attaching less importance to the duration of the drills than to the state of the nervous system of the pupil.

### EDUCATION OF THE SENSE OF SIGHT.

Good long-distance vision is required in the use of modern weapons.

Now, in order to have a clear perception of distant objects, it is not sufficient that the eye be of normal conformation; it is a thing which has to be learned. Sailors and signal men along the coast, whose range of vision is considerable, have acquired this quality by practice, by an unconsciously attained education. In most of the other professions we seldom use our eyes except for close vision, for we are not accustomed to discern distant objects. But it is possible to increase the visual acuteness of not only those men whose eyes are normal, but of those

attacked by myopia, hypermetropia, and astigmatism to a slight degree.

If the functional inactivity leads rapidly toward the loss of vision, regular exercise is not slow in restoring it. In strabismus, for example, the squinting eye, which generally ceases to be useful, loses its visual power by degrees, but it rapidly recuperates if the functions of the other eye are suppressed.

In saying that the eye loses its visual powers, we employ an expression which may cause confusion regarding the mechanical phenomenon of vision. The eye having undergone no alteration in its structure, it is necessary, in order that sight be destroyed, that the visual cells of the brain be in a state of functional inactivity, for it is the brain that sees, elaborating within itself the luminous impressions transmitted to it by the retina and the optic nerve. These latter are only receiving and transmitting organs; the interpretation of the impression —that is to say the perception, devolves upon the brain. It is consequently the education of the nerve-cells that have to be accomplished. The instructor must be well impressed with the fact that in the matter of vision the mind has a task to perform, and that it is necessary to increase the visual intelligence if one may so express one's self (Trinaud).

It does not enter into the purpose of this article to point out the details of the methods to be employed to attain this end. We will limit ourselves to pointing out the usefulness of devoting a large part of the preparatory instruction to the eye, of carrying on the practice in the beginning as much as possible in clear weather, which increases and sometimes doubles the visibility of objects, the purpose being to always surround the young rifleman with the best conditions in order to obtain good results.

### POSITION OF THE SHOT.

We have advised placing the beginner in the prone position. This position presents two advantages; it causes the minimum of fatigue; it gives the maximum of precision.

The first advantage is manifest and is not a negligible quantity. The second is the result of several factors. The displacements, whether caused by the recoil of the piece, by the reflexes or by the ordinary oscillations of the body are less than in any other position. The piece being held firmly against the shoulder and supported by both hands with the elbows resting

on a fixed plane, describes only small oscillations, permitting the pupil to quickly direct the line of sight. It is important to suggest to him that he hold the piece firmly, without stiffness and without employing too much effort in assuming this position. When the pupil is able to place two-thirds of the shots within the central zone he takes the kneeling position, the right foot being placed either in flexion or extension at the will of the rifleman. The position is fatiguing, a long suppling being necessary to make it tolerable for any length of time; it is well to allow the rifleman to take both methods and to rest the weight of his body on the heel. The kneeling position offers the greatest rapidity of fire.

When three-fourths of the bullets are placed within the central zone, the instruction is continued in the position of firing standing. This is the most fatiguing position, and the one which requires the longest training, as much for the easy support of the weight of the piece as for diminishing the amplitude of the movements of the arm and of the body; for these reasons it should be taken last.

In revolver firing we allow the beginner the liberty of holding the weapon at will, of placing the arm and the forearm in the position most suitable for him. Generally the young shot holds the arm in a more or less flexed position, for it appears to him to give less fatigue and permits him the more easily to decrease the unsteadiness of the weapon. Another reason which he often unconsciously obeys, in determining the choice of position for the superior member, is the necessity for adapting the eye so as to clearly distinguish three points; the sight notch, the front sight and the point aimed at. Now, the distance at which the weapon muts be held in order to attain this result varies according to the conformation of the eye and its adaptive ability. The pupil determines this distance instinctively; every liberty must be allowed him in this regard. When the results obtained under thees conditions are satisfactory, it is well to accustom the pupil in the classic position which permits the maximum of precision being attained. In this position the forearm is held nearly straight, and the butt of the revolver is held in such a manner that the axis of the hand and of the forearm will be as nearly as possible in prolongation of the line of the arm. This last position is taken as soon as the arm is sufficiently supple that the weapon can be held for osme moments without fatigue.

It is on account of the need for this preliminary suppling that we do not compel the pupil to take this position at the outset.

### CONCLUSIONS.

The method which we extol has the sanction of long experience. It has several advantages over the methods commonly practiced.

It permits the quick training of shots. For the beginner it avoids the discouragements so prejudicial to his instruction. There is born and developed in him the liking for small arms' practice, because it gives him confidence in his skill and in his weapon.

But in order to obtain such results the instructor must have absolute confidence in the efficiency of the method, confidence which he can acquire only by personal and assiduous practice. Under these conditions he will cause his pupils to share his faith and brilliant success will crown his efforts.

### TRANSLATOR'S COMMENTS.

The methods outlined above, so far as they apply to rifle practice, were used by the translator as far as it was possible to apply them in training eleven re-enlisted men and recruits who had joined his company after the close of the regular company practice, and near the end of the season in 1905. One of these men had previously qualified as sharpshooter, one as marksman, three as third classmen and six had never qualified in the marksman's course.

For three or four days before going upon the range, and also during the instruction practice while on the range, they were assiduously worked in these exercises, using the gun sling and peep sight. The range practice for these men in the marksman's and sharpshooters' courses covered six days and ended by four qualifying as sharpshooters, five as marksmen and two as first classmen. There was no flinching on the part of any of the men after the second day of the preliminary position, aiming and gallery practice exercises. It was also made a point to assure them from the beginning that if they constantly and faithfully applied the principle of the trigger pull, as taught them in accordance with the above methods, they would all qualify as first classmen or better, and the results fully justified the confidence that was inspired in them.

# THE OPERATION AND MAINTENANCE OF A RAILROAD IN A THEATER OF WAR.*

By Captain W. D. CONNOR, Corps of Engineers.

## II.

THE great difficulty in operating a military railroad has never come from failure by the railroad men to grasp the military requirements, but always from a failure by the military men to grasp the railway situation. The fact that a man in whom some governor is "reposing special trust and confidence" happens to be riding on a military railway gives him no ownership in the train nor the track, nor does it authorize him to give orders to the railway officials or employees, nor otherwise interfere in the operation of the road. This simple fact seems hard to teach, but experience both here and abroad has shown that it is absolutely the fundamental principle for the successful operation of a military railroad. Any officer must be held as responsible for an unauthorized order to a railway official or employee as he would be if he gave it to a regiment of infantry or to a battery of artillery. A South African railway official is quoted as saying that the attacks of the enemy on the line were not nearly so disturbing to traffic as the arrival of a friendly general with his forces.

The following order was issued in 1862:

War Department, A. G. O.
*Washington, D. C., November* 10, '62.

Special Orders No. 337.

* * * * * * * * *

Commanding officers of troops along the line of the military railroad will give all needful facilities to the officers of the road, and to the quartermasters in loading and unloading the cars so as to prevent delays. On arrival at stations the cars will be unloaded, night or day, and the whole train will be unloaded at one time, and parties will be ready to unload on the arrival of the trains.

* * * * * * * * *

Commanding officers will guard all the track and all the railroad property within the limits of their command, and will be held responsible for the results. Any military officer who shall neglect

*Continued from September Journal.

his duty in this respect, on being reported by a quartermaster or by an official of the railway will have his name stricken from the rolls of the army.

No officer, whatever his rank, will interfere with the running of the cars or engines as directed by the director of military railways or of his agents. Any one who so interferes will be dismissed from the service for disobedience of orders.

By command of the Secretary of War,
(Sig.) E. D. TOWNSEND,
*Asst. Adjutant-General.*

General McCallum regards this order as the foundation of all the success that the military railroads had in their operation and the lack of such an order as the cause of the failures of the railways that were run by the military authorities on several occasions and which were dismal failures. He states: "Without it (the order) the whole railway system, which has proved an important element in conducting military movements, would have been not only a costly experiment, but a ludicrous failure. The fact should be understood that the management of a railway is as much a distinct profession as is the art of war and should be so regarded."

### DUTIES OF THE CHIEF OF THE FIELD RAILWAY SERVICE.

With the commencement of the advance the duties of the chief of the field railway service will be:

1. To keep the commanding general posted as to the capacity of the railway, and to transmit the general's orders.
2. To repair and operate the railroad as fast as the army advances.
3. To protect the railway officials and operatives from the interference of the military forces along the road.

Our regulations place this officer on the staff of the general commanding the base and the line of communications. Colonel Girouard says emphatically that this is a mistake, and that after two years' trial of this system in South Africa it was decided that all such officers should be under the chief of the railway service, who is on the staff of the general commanding. This is the case in the German Army where the Chief of the Field Railway Service is directly under the Inspector General of Communications, who is one of the assistants to the Chief of the Staff of the Emperor.

### THE ADVANCE OF THE ARMY.

As the army advances, the construction corps follows, repairing the bridges, sidings and stations. This part of

the construction corps must be in charge of men especially selected for their ability as rapid repairers. Their repairs will, as a rule, be temporary in their nature, and they will be followed by another gang that will make the permanent repairs. The first thing necessary is to get some sort of a line through and this cannot wait for the permanent repair. The ordinary train service will run to the beginning of the temporary line and from this point lighter locomotives will haul the cars to the end of the track. The division directly behind the army will be the most difficult to handle and it should be a great deal shorter than the others in the rear, where conditions are more settled and operations are proportionately easier.

Each division should have its own commissary, quartermaster and medical officers. The men should be provided with houses or tents and should be kept track of, as in any other military organization.

From the first there will be trouble from outside interference and from conflict of authority, unless past experience is profited by and distinct rules made to cover all possible contingencies before they arise. Officers charged with carrying out certain duties, and anxious to do them properly are not always able to see beyond their own sphere, and realize that there are a dozen other officers along the line with work that they consider more important than his and all of them acting as though they thought that the railroad was operated for their particular use, instead of for the service at large.

Military roads often cannot comply with nearly all of the demands made upon them when running at their best and unmolested, and chaos will surely result if outside interference is permitted at all.

### RULES THAT ARE GENERALLY CONCEDED AS ESSENTIAL, AFFECTING MILITARY OFFICERS.

Military railway experience in this country and abroad has proven conclusively that the following rules must be observed if efficient service is to be obtained.

1. The duties of the railroad men are so special and so well defined that except in cases of emergency they should not be under the orders of any one except the railway officials. The commanding officers at the stations of the line should not be able to give

orders, either to the trainmen temporarily at the station nor to the employees at that point.

2. All orders and instructions in regard to the movement of trains must come from the superintendent or his representative. No orders from any other source will be obeyed unless from the commanding general, his chief of staff, or the chief of the field railway service, and such orders will be in writing, signed by one of these or given orally by one of them.

3. If, in case of emergency, the military commander gives orders in conflict with the regulations, he will sign the same and in doing so, will assume the responsibility, and every such case arising will be passed upon by the chief of staff. Such assumption of authority will not relieve the trainmen from responsibility for observance of all other points of the regulations not covered therein.

4. No person, civil or military, shall have the right to order the trainmen to detain a train or to run it ahead of its schedule.

5. Requisition for cars will be made well in advance and through the proper officer to the railway officials.

6. The superintendent will be notified in advance of important shipments so he may arrange to move them without delay.

7. Shipping officers should be warned that supplies should not be forwarded to an advanced terminus until they are needed; that stores for immediate use will be shipped first; and that unneeded stores will be stored at suitable points so as not to block up the line nor fill the advanced storehouses.

8. Government storehouses will be erected at all stations. Tents will answer for a time, and all stores must be unloaded immediately on the arrival of the cars and unnecessary delay of the cars is forbidden.

9. The exact time that a special will be needed should be given to the despatcher so that a siding will not be filled up unnecessarily. The work of the entire division might easily be delayed by not observing this rule.

10. Insolence, incivility, a lack of respect or of accommodation should be immediately reported to the superintendent. Only for extreme cases will the commanding officer of any station take the offender into custody, and even then he will report his action to the railway officials at once.

11. Officers on duty and despatchers, only, will be allowed in the telegraph stations, and loafing about the stations will not be permitted, as this is a fruitful source of information for spies.

12. The railroads will transport such men and materials as are ordered at any special time by the higher authorities; but all such men and materials must be authorized to move. This will not require involved red tape; for men, it means authority for their absence and for their transportation; and for materials, it means a proper bill of lading.

13. Freight requiring preference in movement will be shipped on a special bill of lading, or on one accompanied by a red slip, and shipping officers will be held responsible for the unnecessary use of either.

14. Officers commanding units ordered to move by rail will, upon receipt of such orders, telegraph the chief of the field-railway service the following information about the troops at each station:

The stations of the troops and their destination.

The number of officers, men and horses.

The number and kind of carts, wagons and guns.
The approximate weight of the baggage and equipment.
The time when the troops will be ready to move.
Any other pertinent or special information.

On receipt of this information the chief of the field railways will make his plans and send details of his arrangements to the officers concerned. The troops must load their own baggage and animals.

15. As in all probability many railway supplies will have to be brought from the rear it should be a military offense to use railway materials for fuel.

16. Civilians should have permits to travel as well as passports to move about the territory.

17. Troops will not occupy railway buildings, except to defend themselves, if such buildings are needed for railway use. When so occupying such buildings, care will be taken not to interfere with the operation of the railroad.

18. All ordinary communications with the railway officials will be carried on through the local agents.

19. The senior officer, or non-commissioned officer, on any train will be responsible that order is maintained and that the regulations are obeyed, and he may order any soldier to assist him in this duty whether the soldier belongs to his organization or not.

20. All stock and horses will be watered and fed while enroute over the military railroad by the employees thereof.

21. All box-cars will be provided with removable seats for the transportation of soldiers and of the sick and wounded.

22. The railroad authorities will keep all surplus rolling stock away from the front so that the liability of its capture will be decreased.

23. The military railroad authorities will make arrangements with other roads for demurrage on cars that are kept over the allowable time. This will practically be renting such cars.

24. Cars will be taken from or left at a station on the orders of the train despatcher.

25. Special engines and trains will be arranged for by the train despatcher for the ordinary working of the division. Special movements of large size will be taken up in due season with the traffic manager by the officer in charge of the movement. Such special movements will, as a rule, be accompanied by and looked after by a train master who will meet the train when it arrives on his division and will accompany the same over his division.

26. Complete car reports will be made at least once daily so that the train despatcher may always know the location and number of empty cars, the probable number of loads for the next twenty-four hours, and the length of time that cars are being held for unloading.

27. The time of arrival and departure of all trains will be posted conspicuously in all stations.

28. A system of telegraphic time will be arranged for so that there will be uniform time at all points on the line.

29. The conductor is responsible for the running of the train, though for any actions clearly contrary to regulations the engineman is equally responsible.

30. Employees will comply with every request not incompatible with their prescribed duties, and if necessary to refuse they will do so civilly.

31. The chief of the field railway service will determine at any time whether any other than military supplies will be carried by the railroad.

### RELATIVE TIMES REQUIRED TO GO BY RAIL AND TO MARCH.

Every body of troops that is ordered from one place to another will normally desire to go by rail, and if the road is taxed to any where near its limit, it frequently is not at all desirable to suspend freight traffic and carry troops. The question of the relative times required to march the distance and to go by rail will frequently come up.

Let. D—the distance to be traversed.
N—the number of troops.
Z—the number of trains that can leave per hour.
Y—the carrying capacity of each train.
R—the rate per hour of train travel.
M—the rate of travel of troops marching.

As the troops can only march about eight (8) hours per day and as the trains and the loading can go on day and night, the problem divides itself into two parts, i. e. where $\frac{D}{M}$ is eight or less, and where $\frac{D}{M}$ is greater than eight.

In the first case; if $\frac{D}{M} < \frac{N}{ZY} + \frac{D}{R}$ it will take less time for the troops to march than to entrain and be transported. If $\frac{D}{M}$ is larger than the second term then the troops will go quicker by train.

In the second case; if $\frac{3D}{M} < \frac{N}{ZY} + \frac{D}{R}$ it will take less time for the troops to march than to go by rail. If the second term is the larger the converse is true. (To be accurate, if $\frac{D}{M}$ equals a mixed number, the whole number only should be multiplied by 3 and the fraction added to the result.)

If the two terms are nearly equal and the railroad is heavily taxed by its freight the troops should march, unless there is urgent need of having a few soldiers on the ground at once.

Large bodies of troops take so long to entrain that they can go on foot quicker than by rail over much larger distances than can small bodies of the same troops.

### NUMBER OF TRAINS POSSIBLE ON A SINGLE TRACK ROAD.

Given a certain type of engine and its load, the number of trains per hour that can be run over a single track road depends upon the distances between stations, the grades, curves and condition of the road-bed. There will be a certain interval between stations where a combination of the above elements will govern the number of trains that can be run per hour over that particular division. That interval is the one that requires the greatest length of time for a train to traverse in both directions. Every endeavor should be made to have these times equal for all intervals between stations and to accomplish this extra sidings, engines and flagmen must be used. This same effect could be accomplished by lightening the loads at different stations, but it is not expedient to change the loading so often, and other measures must be resorted to.

### ECONOMIC RELATION OF TONNAGE AND TRAINS.

The engines are changed at the ends of the freight divisions and at this point a change can readily be made in the load in each train. The number of tons that an engine can economically pull over a division is called the tonnage rating of that engine for that division. This will vary on different divisions, due to the three elements before mentioned. When a new section of the road is taken over for operation, the superintendent should have a study made of the new line and the old line, together, to see where, by putting in new sidings, improving the road-bed, or putting in extra engines, he can increase the possible number of trains per day or the number of tons per train.

The economic arrangement will be when the maximum number of trains per day over a division, multiplied by the maximum tonnage rating of the engines used, is the same for all divisions. To do this exactly is impossible, but every step toward this end will increase the efficiency of the road. If the carrying capacity exceeds the demands made upon the road, there is no particular need of exertion to get the full work out of the road, but the Southern States, France, Egypt, the Philippines and South Africa are all examples of wars carried on without sufficient railway facilities and no record has been found of one waged with an excess of such facilities.

### CAPACITY OF A DOUBLE-TRACK RAILWAY.

Assuming as before that we have determined the capacity of our engines over a certain stretch of tracks, the number of trains that can be run per hour over a double-track road, until we reach one continuous line of cars at the limit of speed, is only limited by the consideration of safety. Trains break in two, engines fail and other accidents happen; and if the train behind is too close it runs into the disabled train before the proper precautions can be taken. Trains running very close together are limited greatly in the speed that they can attain, and probably on a military road the best system that could be applied would be the closed block system where no two trains are allowed in the same block except under special conditions, and then the second train runs with a precautionary permit that warns the engineman that he is running behind another train and has not a clear road in front of him. These blocks should be at stations if they are not over five or six miles apart, as this has been found to be a good length for the blocks. The agent at the block sets his block against traffic as soon as the train passes his block and holds it there until he receives word from the next block operator that the train has passed his block and that the track is open between them.

### TRAINS ON THE RAILROAD BEHIND SHERMAN'S ARMY IN 1864.

The trains on the Nashville and Chattanooga Railroad in 1864 were run in fleets of four trains each and four such fleets were sent each way daily. These trains averaged about ten cars of ten tons each. making the total about 1600 tons that went to the army daily. General Sherman says that "this exceeded the absolutely necessary needs of the army and allowed for accidents that were common and inevitable." This army, at this time, consisted of 100,000 men and about 35,000 horses in a hostile country.

The carrying capacity of all roads has increased enormously since the Civil War and cars of fifty tons capacity are common to-day while cars under twenty tons capacity are uncommon. The number of such cars that can be hauled by one engine varies with the class of engine and with the compensated grades of the road. The railroads of this country are to-day all engaged in reducing grades and strengthening bridges. The most favorable data that I have at hand is

the line of the New York Central system from Ashtabula, Ohio, to Youngstown, Ohio. Over this division 5600 tons is the maximum load that can be hauled in one train. The dead weight of a car is about one third of the gross weight of the loaded car. Therefore, on the above mentioned road one engine can haul thirty-seven times what one could to supply Sherman's army.

### COMPARISON OF THE RAILROAD, NASHVILLE TO ATLANTA, 1864 AND 1905.

The above is a special case of a low-grade (0.3%) ore-carrying road, but on the railroad running from Nashville to Atlanta, via Chattanooga, the regular freight engines to-day haul 950 to 1050 tons. Deducting one third for the dead load, about 634 tons remain as the load per engine. Therefor one engine can now haul about six and one third times what one could over this same road in 1864. Some of the material in army supplies, such as forage, is very bulky, but the ammunition is just the reverse and a judicious arrangement of the loading would give each car about its normal load.

### QUESTION OF THE OPERATORS.

On account of the existence of the signal corps a question might arise as to the feasibility of using these troops for the telegraph operators on the railroad. This could be done if the operators were to be entirely under the control of the railway officials but any division of the control with the signal corps would be simply out of the question. The signal corps is responsible for the military lines and might have its lines on the same poles as the railroad lines, its offices in the railroad buildings and messages going and coming between the same persons, but its first duty is military and a complete separation of the two in all essentials is imperative.

The railroad telegraph lines must be at all times open for railway use, if trains are to be run over the road. When military necessity requires the use of the railway telegraph lines it is another case; then the trains will stop running temporarily and the telegraph will be turned over for military use upon an order from proper authority.

### MAINTENANCE OF WAY.

Maintenance of way on a military road is practically reconstruction in a great many cases, and requires a much larger department than the one of the same name on a civil railway. The amount of damage that an active enemy can do to a railroad is illustrated by Hood's move against the Western and Atlantic Railway in October, 1864, when thirty-five and one half miles of track and 455 feet of bridging were destroyed in one place. The rapidity of repair is shown at the same time, for ten miles of the break were repaired while the Confederate troops were still along the line of the track and the other twenty-five miles within a week after the repairs were started at the conclusion of the raid. The break only delayed traffic thirteen days.

In the Division of the Mississippi alone the construction corps rebuilt over nineteen miles of bridges and trestles and 433 miles of track between March 1864 and September 1865, at a total expenditure of $12,115,881.11.

On the Louisville and Nashville Railroad out of forty-three bridges there were only six that were not at some time destroyed by the enemy and of the other thirty-seven one was destroyed five times while many of them were destroyed three times.

The rebuilding of the Chattahooche bridge still stands as a record of military bridge building. This trestle bridge, 780 feet long and ninety feet high, was rebuilt in four and one half days. The timber was cut from the adjacent forest.

To be able to accomplish results like the above, one hour spent in previous preparation is worth more than days and weeks spent in perspiration when the critical time arrives.

### THE DIVISION ENGINEER.

The division engineer is in charge of this department; he must not only be a good engineer, but an organizer of the best kind, for upon his energy, ingenuity and ability depends to a very great degree whether the road is running in good order practically all of the time or whether most of the time is spent in repairs.

### CONSTRUCTION SECTIONS.

The line is divided into construction sections and each of these sections, of about 100 miles in length, must be com-

pletely equipped for every kind of construction that may be required in that section. The men, materials and tools must be where they can be started toward the break on a few minutes' notice. This is especially important in a country where the inhabitants are hostile, or in one infested with guerrillas.

### WRECKING OUTFITS AND CREW.

At some point near the middle of each division of 200 miles must be a complete wrecking outfit and crew, ready at all hours to move on ten minutes' notice. Such an outfit must be equipped with an all round swing derrick, and in the cars in rear must be every kind of useful wrecking and repair tools, with a hospital for the injured and a full supply of food and bedding for the men. All the above costs money, and there is no possibility of ever having any sort of a railway outfit in time of peace; but with a people as prodigal in war as they are penurious in peace, some plans ought to be on hand so that when war does come we will be prepared.

On the railroads in the Division of the Mississippi there were at one time 6000 employees in the construction corps. It may be stated as an axiom that no useful, economical and efficient organization of 6000 men can be made without preparation. Each division of about 100 miles had about the following employees in the construction corps (when in actual service).

One division engineer, one assistant engineer, one rodman, one clerk, two draughtsmen, two messengers.

The employees were subdivided into five subdivisions with a supervisor in charge of each.

### DIVISION OF THE DUTIES.

*Subdivision No.* 1.—*Supervisor of Bridges and Carpentry Work.* Clerk, timekeeper, commissary, quartermaster, surgeon, hospital steward, six foremen, thirty subforemen, 300 mechanics and laborers, two blacksmiths and twelve cook.

*Subdivision No.* 2.—Supervisor of Track. The rest of the organization was the same as the first subdivision.

*Subdivision No.* 3.—Supervisor of Water Stations, with one foreman and twelve mechanics and laborers and one cook.

*Subdivision No.* 4.—Supervisor of Masonry. One foreman, ten masons and helpers and one cook.

*Subdivision No.* 5.—One driver foreman, eighteen drivers and a cook.

In addition to these there were two train crews consisting of two conductors, four brakemen, two enginemen, two firemen and a cook.

ORGANIZATION OF THE PERSONNEL.

The commissary was charged with the drawing, caring for and issuing of rations. The quartermaster was responsible for the tools, camp equipage and other property. Each foreman was responsible for the tools that his gang had for use at any time. The foremen were appointed by the division engineer and they in turn appointed the subforemen. The division engineers and their assistants were appointed by the chief engineer.

A division like the above was complete in itself, was ready to move to any point on the division and ready to do any sort of work. "Being from the nature of the case entirely ignorant of the obstacles to be met with in the advance, the construction corps has to be prepared for any emergency; either to build a bridge of formidable dimensions, or to lay miles of track, or perhaps to move back to some point on the line and repair damages done by guerrillas or raiding parties. These attacks on the line in rear became of such frequent occurrence, and often of so serious a character, that to insure speedy repair it became necessary to station detachments of the construction corps at various points along the road and also to collect supplies of construction materials, such as rails, chairs, spikes, cross ties and bridge timbers, at points where they would be comparitively safe and easily obtained when required."

These precautionary measures proved of the utmost importance in keeping the road open. The detachments stationed along the line, composed of bridge builders and track layers, had an ample supply of tools for either kind of work. Each detachment was under the command of a competent engineer or supervisor, who had orders to move in either direction, within certain limits, as soon as a break occurred and to make the repairs, working night and day if necessary. When big breaks occurred one or more divisions of the construction corps were moved as rapidly as possible to the break, either from Chattanooga or from the front. Construction trains loaded with the requisite tools and materials were kept ready at each end of the road to move at a minute's notice.

In 1862 it was found that about one locomotive and twelve cars were needed for every two miles of track to supply an army of 100,000. To-day the engines are able to haul

about seven times what they did at that time; the cars average about two and one half times the carrying capacity, the speed is about one and one half times as great, while the needs of the army have only increased about one quarter. Taking all these factors into consideration, it is believed that at the present time one locomotive and thirty-five freight cars and two passenger cars for every fifteen miles of track would be a fair estimate of the rolling stock necessary to supply an army of 100,000. This makes allowance for the inevitable break downs and the necessary repairs, that are much more frequent on a military than on a civil railroad.

In North Carolina, with six locomotives and eighty-seven cars at the disposal of the railroad, 3000 carloads were sent from the coast to Goldsboro, a distance of about sixty miles, in two weeks.

### PROTECTION TO TRACKS AND TRAINS.

Owing to the ease with which a line of railroad can be broken, the entire line exposed to the enemy's attack must be protected and special attention must be paid to the most vulnerable points which are, bridges, tunnels, and viaducts. There are two methods that have been used separately with more or less success, and together with marked success in the late wars. These are, the use of armored trains and the system of blockhouses. Blockhouses were used extensively in the Civil War to guard the Union railways, while in South Africa the British used armored trains exclusively during the early part of the war. A combination of the two systems of defense was finally adopted by Colonel Girouard and against a foe as wily, indefatigable, and determined, as was the Boer, it worked most successfully. Each supplemented the others in its weak points and the armored trains were a sort of mounted reserve for the skirmish line of blockhouses.

### SOUTH AFRICA.

The final system in South Africa was to have a blockhouse about every 2000 yards, while at central points on the line the armored trains were held ready at all times to over a threatened section. All trains had one armored car next to the engine, and all locomotives were armored over the vulnerable parts and about the cab of the engine man.

### BLOCKHOUSES.

The blockhouses would be the ordinary type for twelve to fifteen men, protected around the bottom by a parapet, and covered by a sheet metal roof. The system would include blockhouses at all the important vulnerable points, and the entire system should be connected by telephone.

### MEN.

Fifteen men every 2000 yards means about one battalion of 400 men to every twenty miles of track. This allows three companies in the blockhouses and one company for a reserve. The line must be continually patrolled during the night and in stormy weather.

### ARMORED TRAINS.

Armored trains are composed of from four to six cars whose sides are armored with sheet steel through which port-holes are made for the guns. Each train has an infantry escort in the cars.

Colonel Girouard says of these trains: "It was some time before the proper functions of armored trains were understood, either by the army or by the railroad department."

At the beginning of the war there were five of these trains on the road. "The armored trains led a precarious existence, for some time, being constantly sent scouting for many miles up the railroad, without any support, with the natural result that one of the Natal armored trains was destroyed by the enemy on the 15th of November, 1899, outside of Chieveley. The trains on the Cape Colony were more fortunate and had several lucky escapes. Owing to these incidents, the impression that armored trains were useless became general. At this stage of the war, used as they were without support ahead of the advance, exposed to the artillery of the enemy, armed only with Maxims and rifles, they certainly were useless; but later, when we had all the lines in our possession, with fortified posts every few miles along the railroad, and the enemy's artillery had become scarce, the armored trains, which now carried guns, were invaluable for protecting the line and frequently succeeded in damaging the enemy. There is no doubt also but that the enemy disliked them intensely, and the presence of an armored train had a great moral effect.

The number of armored trains was gradually increased to a total of nineteen. They were first placed entirely under the orders of the officers commanding sections of the line." For various reasons this arrangement was found to give poor results and later all such trains were placed in charge of one officer who was on the staff of director of the military railways, and of the general commanding.

As the trains were moved about they were under command of the general on whose section they found themselves, but when needed elsewhere the trains were free to go and passed to the orders of the next general officer within whose territory they remained.

The guns on these trains would not normally be greater than three-inch guns, but experiments have been made and it was found that a six-inch gun could be fired twenty degrees on each side of the line without any ill effects. The armor should only be thick enough to withstand shrapnel, for on account of the weight, it would be impracticable to carry armor for larger projectiles anywhere except, possibly, for the boiler of the locomotive. The armored trains should not be kept at the more important stations, nor should they be used as means of transportation for the officers of the sections of the line where they are stationed. They should be kept at the smaller stations and should be constantly moved from point to point as news is received that hostile troops are in that particular vicinity.

# THE ORGANIZATION, MAINTENANCE AND TRAINING OF FIELD BATTERIES IN THE ORGANIZED MILITIA.*

By Lieutenant JOHN F. O'RYAN, Field-Arillery, National Guard S. N. Y.

## II.

### OFFICERS—PHYSICAL AND EDUCATIONAL REQUIREMENTS, COMPENSATION.

THE present source of officers generally throughout the militia is the personnel of the commands in which they are to serve. Generally speaking, officers are elected by the enlisted men, and upon passing a mental and physical examination are commissioned by the governor. In some States examinations are not required, while in others they are merely formal. The necessity for an officer, particularly an artillery-officer, to possess a proper general education needs no extended argument here. Bacon said that "histories make men wise; the mathematics, subtile; natural philosophy, deep; morals, grave; logic and rhetoric, able to contend." An officer should possess these attributes, and base his scientific and professional education on them.

The present system of selection of officers by election is so contrary to all military principles and to all the teachings of military history that it might not be improper to say that the men who advocate its continuance in the militia must be either ignorant of military history or wilfully perverse. Many commands are kept in a continuous condition of disorder as a result of this pernicious system. No sooner have the bad effects of a hard political campaign for the election of a company officer begun to disappear, when perhaps another vacancy exists and the same conditions recur. It is not human that officers who have taken an active part in such election, and in the campaign which precedes it,

*Continued from September Journal.

should not have acted in a manner and made errors incompatible with the correct attitude of an officer. In this connection it might be well to point out that at one time, in New York State, the non-commissioned officers were elected by the men. Discipline did not begin to exist until after that system was abolished. They are now appointed by the company commander and warranted as in the army. Officers of signal companies in New York State are appointed, not elected, and there has been no objection heard from any source. The system, however, which is suggested as the best yet devised, is that recently proposed for adoption by the State of New York, and more particularly explained in THE JOURNAL OF THE MILITARY SERVICE INSTITUTION, Vol. 32, p. 259. In brief, the system is promotion by organization seniority, subject to a rigid examination; the senior in line for promotion, however, to have the privilege to decline promotion. An officer who fails to pass the examination to have the right to be examined within not less than three months from the first examination, and in the event of a second failure, to be allowed to resign and receive honorable discharge, if entitled to it in other respects. The proposers of the system in question, with an evident desire not to appear too radical, left the filling of vacancies in the grade of second-lieutenant to election by the enlisted men, as at present.

To do away entirely with this evil is to be desired, and therefore, in this hypothetical battery which we are considering, the candidate designated to take the examination for second-lieutenant, together with an alternate, would be named by a board consisting of three battery commanders, of whom the company officers of the organization in which the vacancy existed would be one. This board would consider under present rules the qualification of every man who applied to be considered or whose name was presented in connection with the vacancy. Thus without any election the sergeants and other enlisted men could be considered, as could also desirable and well-educated graduates of military schools, or civilians and ex-officers of the army or the National Guard of other States. The candidate selected should be under thirty years of age, and after passing a proper physical examination should be examined in spelling, U. S. history, general history, geography, English grammar and rhetoric, arithmetic, plane geometry, algebra, at least as

far as quadratic equations, trigonometry, civics, artillery-drill regulations, elementary matter and minor problems in "Bruff's Ordnance and Gunnery" and "Dyer's Hand-Book of Light Artillery," "Febiger's Field-Fortifications," and knowledge of the horse, his training and care.

We now come to the subject of compensation for officers. The situation existing at the present time is incomprehensible to those not familiar with the evolution of the present militia officer.

At the present time in New York State a small allowance is made annually to each officer to assist in uniforming himself, but the assistance is inconsiderable. In Illinois officers and men are now paid for all drills and target-practice. The time has now arrived when the Government and State must offer some inducement for service in the organized militia other than an opportunity to spend money, if the standard of its military efficiency is to be further raised and maintained. Officers of our command average two drills each week, with extra work in the form of pistol practice, non-commissioned officers' school and the time involved in the preparation of lectures therefore, study in ordnance and gunnery, reports, and in the spring, summer and fall, outdoor exercises, practice marches and gunnery. This with the requirement that the officer must so regulate his civil business as to be ready at an hour's notice to serve the State in a riot, or the Federal Government for a period of nine months, with a possibility of being maimed for life or killed in action, makes it difficult at present to obtain philanthropists in sufficient numbers and properly educated to fill vacancies. Militia officers should receive one-half pay of their grade during drill season and full pay for all time in service, in camps of instruction, on practice marches, or at outdoor target-practice. There are some officers who do not now perform the work they should, and with this system of compensation the Government and State would be in a position to raise and maintain the standard of the commissioned personnel. Many college men with well-trained minds and bodies who cannot now afford to consider a commission in the militia would be attracted to the service, and the Government and State would be the gainer in an inestimable degree.

ENLISTED PERSONNEL—PAY.

"*Our business in the field of fight is not to question, but to prove our might.*"—Homer—Odyssey.

This principle of military discipline has maintained its importance from Homeric times to the present day. Discipline existing, the efficiency of the command is yet dependent in a great measure upon its physical might and endurance. The most important fact concerning the militia personnel is that its physical standard is not what it should be. The true conditions in this respect are generally lost sight of in the admiration for the prowess of the militia athletes. In athletic contests, wherein the men of the militia and the army jointly participate, the latter are usually outclassed, and from this, erroneous ideas are engendered. It is not always remembered that these contests are means to an end and not the end. The end sought is the physical fitness of the men of the command *for service in campaign;* not the production of a champion hammer thrower, pole vaulter or sprinter. The company, troop or battery is not the gainer in its fighting efficiency because it carries on its roster one or more of these men, except, perhaps, as it might be indirectly benefited by the resultant improvement in its *esprit de corps* and company pride. The physical standard of militia commands is not up to that of regular commands. The army command is more homogeneous. The militia command is made up of extremes. In a field-battery the men should be chosen for their nerve, good physique and intelligence. They should be of medium height, and of a type more wiry than burly, and full of resolute courage. The city of New York, and in fact most of the cities and towns throughout the country, are full of such young men. They are in most cases mechanics. They are as a rule intelligent, full of spirit and reckless courage, and but need the valuable training only obtained through military discipline to round them out. But these young men as a rule are not attracted to the military service, either regular or militia, in time of peace. They are very practical, and with a keen business view quickly decide that there is no compensation for the work involved, and that nothing is to be gained by enlistment. We are therefore confronted with the problem of making the service attractive to such men. You can appeal to the sentiment of this agile, mus-

cular, intelligent mechanic, this ideal light-battery man, in time of war. Then you can get him in numbers and for no pay if the Government so willed it, but as we have seen he is of little use then. He is untrained and the time is too late to train him. He does not understand this, he is so confident of himself. In time of peace, however, this man is devoid of military sentiment, and to attract him to the ranks where he can be properly trained and prepared for war, the Government and State must make him a business offer, which means fair and reasonable compensation for attendance at drills, target-practice and theoretical schools, as well as at camps of instruction, maneuvers and riot duty. With this inducement there would be a moral as well as a legal right to require of the enlisted man a full measure of efficient work. The good effect on discipline would be at once noted. There would then not exist the hesitancy to administer fines for delinquencies, which now obtains to the detriment of discipline. As to the amount of such compensation, it should be for all drills or schools at night, and for all drills or target-practice during the day where less than one half a day is spent in such work, one half the State per diem pay. Thus, in New York State the private soldier draws $1.25 per day when in the State service or in camps of instruction, and under the above pay schedule he would draw for all evening drills or schools sixty-two cents and the same sum for all outdoor drills during the day when less than one half a day is spent in such work. Payrolls would be drawn and certified in the usual manner and payments made monthly by the paymaster.

With the subject of pay provided for in the above manner, the proper fighting physical material would be available for the battery, discipline would be more readily enforceable and the command would take on the traits and qualities of a body of professional soldiers. When this is considered in connection with the dormitory plan outlined under the head of *quarters*, it can well be claimed that the battery in discipline and efficiency can be brought to a very high standard The nucleus of men living at the armory would be added to by the force of armory employees, all of whom would be enlisted in the battery. In New York State the average armory employs an armorer who is paid at the rate of $5 per day, and an engineer and other employees whose number

is based on the floor area of the armory and the number of horses to be cared for. They draw on an average from $2 to $3 per day each. They are paid by the county or State, and are selected by the commanding officer of the command quartered in the armory. Thus a field-battery would ordinarily have six or eight employees. An excellent first-sergeant with experience and a good army or militia record would be appointed armorer. He is thus assured of a proper living for himself and family, and devotes his life to the duties of his position, which is really that of a professional soldier. In the same way the other positions would be filled by old soldiers. No one will doubt the great beneficial effect on discipline of the presence of this nucleus of professional soldiers constantly on duty in the armory. In our battery this plan has been carried out most effectively.

### DISCIPLINE.

If this subject is considered at some length, it will be on account of its vital importance and because it is practically non-existent in some militia commands.

Discipline has been defined as "a course of exercise and practice in order to bring under control and to qualify for harmonious and effective action." It is direct submissiveness to order and control. Discipline depends not only upon prescribed forms and observances, but upon the qualities and personal force of officers. We all know that without the assistance of prescribed forms or ceremonials of respect and submissiveness, or of rules and regulations in support thereof, there are individuals who can command the attention, respect and absolute submissiveness of a large number of others, and do this without threats or appeals or even reference to the subject of discipline. Such persons are found not only in military life, but throughout the industrial world. This ability seems to have no direct dependence upon the muscular power of the individual possessing it, nor yet upon his intellectual attainments. It is a psychic force which announces itself to others almost instanter. It is observed in school and college life where the pedagogue absolutely incapable of maintaining respect, discipline and order is sometimes an athlete and as often an erudite scholar as a man of intellectual mediocrity. We have also observed instances in military and civil life where a large number of men have

been held down to a strict discipline, order and respect by that indefinable psychic something in the personality of one man who made his dominancy felt and respected from the first instant that he assumed command. Such a force asserts itself; it needs not to be advertised or billed in advance, nor the way prepared for it. When its possessor "takes hold," that dominant force seems to overwhelm the individual and collective assertiveness or unruliness of all within its sphere of influence. But in military life as in civil life we do not find all those in positions of command possessing this force, and to supply the deficiency in the enforcement of discipline there has been created what may be termed an artificial psychic force, supported, aided and maintained by the ceremonials, rules and regulations prescribed for that purpose. In this manner the ill effects of the lack of the true dominant psychic force in the maintenance of discipline are minimized.

In the militia, if good discipline is to be maintained, the service can no more afford to do without these ceremonials and observances than can the regular establishment. In our army, as compared with European standards, these have been reduced to a minimum, and they cannot safely be disregarded or laxly enforced in the militia. There are in existence in the militia in some parts of the country several old hoaxes which seem to bear the proverbial charmed life. One of these is that the literal and strict enforcement of the distinction between the enlisted and commissioned personnel is not practical or desirable in the militia. This is based on the statement that it would be considered degrading by the enlisted personnel and because the high standard of intelligence of the latter makes such distinction unnecessary. It is this attitude which furnishes the foundation for the host of anecdotes generally current of the militiaman's weakness for cracking his captain or colonel on the back and asking him what the plans are for the next day, or doing some other equally preposterous and incongruous act. The day for this relationship (if it ever existed) has long since passed. It does not obtain in civil life; why should it be clung to in a field of endeavor wherein discipline is more important than in any branch of civil life? One cannot imagine the clerks in any well-conducted business office, nor the mechanics in a large manufacturing concern addressing the employer or the *alter ego* of the employer in an informal manner, nor seeking

his confidence as to his plans. The fact is that the business relationship of this character is frequently not as close and friendly nor even as informal as that which exists between officers and enlisted men of the Regular Army. Employees in civil life frequently have not access to the employer even on a matter within the scope of their duties, but must confine their relations entirely to the superintendent or other representative of the employer. Yet this is not considered by them any reflection upon their moral, mental or social worth, but as a necessary incident to the maintenance of discipline, without which no large civil or military organization can avoid disruption. For the very reason that the relationship between officer and man in military life is close—that the officer must regard the physical and moral welfare of the man and come in contact with him in order that he may know his individual capabilities and limitations, and that his duty is not solely to see that he receives his stipulated wage—for this very reason that relationship must be safeguarded by formality and ceremonial in order that kindliness may not be mistaken for weakness, interest for favoritism, and that unremitting guardianship may not result in entangling familiarity.

Discipline with all its exemplifications may be real or it may for occasions be acted or assumed. We do not hesitate to say that the kind of alleged discipline which obtains in a command wherein the enlisted men salute officers and follow other required customs of military courtesy with great care and ceremony when in uniform, and immediately upon resuming civilian attire disregard them and are permitted to go out of their way to accentuate the fact that the relationship terminates when the uniform is doffed, is but a sham. In such a command, the courtesies are rendered by the grace of the men. The men are actors. They consent to play a part for a couple of hours a week, but during the remainder of the time they act toward their officers as they would not act toward the same men if they were their employers in civil life. What does this signify? It signifies that when that command is called out for any service those men will, in a day or two, drop the sham, acted, assumed, armory attitude, and chafing under the many restrictions and some hardships perhaps of the service, revert to the actual, familiar and perhaps boisterous relationship of every-day life.

Under such conditions, discipline cannot exist and the command ceases to be efficient. The enforcement of the true discipline at all times will make it consistent, real, actual and acknowledged. The cheerful acceptance by the men is not difficult of accomplishment where the officers are educated men and gentlemen, whose lives and actions inspire respect. In the large cities where the officers and men are not so apt to come together in daily life as they are in the small towns, the problem is greatly simplified.

MATERIAL.

From the table of artillery armament of the organized militia hereinbefore set forth, it will be observed that many of the existing militia field-batteries are practically unarmed. It should be the policy of the Government to foster the pride of these organizations in themselves by intrusting to them the latest artillery *material*. This will be done in a measure when the eighteen batteries authorized by statute for the militia are issued. It is impossible to get either officers or men to take any serious interest in their work, if they know that it is expended in perfecting themselves in the handling of an archaic and useless weapon. For the same reasons the equipment issued to the militia should be of the latest and best type. The ammunition should be of the proper quality. Artillery target-practice does not occur so often in the militia commands that they can afford to be handicapped by poor ammunition. At a recent practice of our battery the field-artillery combination fuzes used in the shrapnel bore pasters showing that they were put up in 1891. They had consequently entered upon their teens, and acted in a most fickle manner, bursting the shrapnel at all ranges from the muzzle to the objective with the same time-setting. If in the matter of ammunition issue the Ordnance Department regards the militia artillery as a good field for the disposal of old and defective ammunition, much will be done to undo the good work accomplished in other respects. The accountability of the militia officers for the valuable artillery *material* entrusted to them is already safeguarded. The artillery *material* in New York State is always maintained in the most perfect condition, and every item of equipment is scrupulously accounted for.

HORSES.

The greatest need of the militia batteries is a proper motive power. The guns cannot be fought, no matter what the gunnery capabilities of the gunners may be, if the horses are not at hand to take the battery through all the preliminaries and place the guns on the firing line. If necessary, the militia act should be amended to permit the State to draw from the Government horses as well as *material* and have the same charged against its allotment. Proper regulations governing accountability for horses could readily be made, insuring protection to the Government. The field-batteries should appeal more to the Government than to the State. Their use by the latter is a remote contingency, much more so than the possibility of war. The necessity for the horses of a field-battery, or at least of a proper nucleus, to be trained in their work, to be undismayed by firing and excitement, and accustomed to the varied requirements affecting their work, needs no extended argument.

TRAINING OF THE BATTERY, AND THE STANDARD OF EFFICIENCY ATTAINABLE.

Much of the elementary training of the battery can be accomplished by volunteer work and extra drills without the expense to the State of pay. If military games were held semiannually, with several prizes for each event, the men generally would compete, and for a month or two preceding the games would voluntarily put in extra time in training therefore. These events should all be practical and include tent-raising, wall-scaling, horsemanship, harnessing a wheel pair in darkness, jumping, loading a wagon, mechanical maneuvers, etc. Pistol competitions and subcaliber matches for prizes would insure a high standard of pistol marksmanship and aid in gunnery efficiency. Rewards for proficiency as disclosed by recitations and examinations in camp sanitation, care of horses, regulations, gunnery, range-finding, signaling, etc., should promote the possession of good theoretical knowledge of these and kindred subjects among the enlisted men—knowledge which is a really necessary basis for practical work. In a city or large town the public are always interested in these military competitions, and the admissions charged to witness them would more than pay

for a large number of suitable prizes. It is a human weakness to make comparisons. Last winter, while mounted platoon drills were being held in our armory, it occurred to the writer that the time used in harnessing the horses could be greatly cut down. In the militia we must always keep in mind the importance of not encroaching on the prescribed drill period with other work. The drivers were therefore notified that those who wished to remain after the recall and compete in a test for speed would be permitted to do so. A large percentage remained, and the competition was had, and the winner declared. This was continued after each drill for a period of about two months, the men getting quite interested in the competition, and manifesting considerable rivalry. In the competition each chief of section of caisson corporal would announce "Ready, sir," when his team was harnessed. The order in which the announcements were made was noted. The team first announcing "Ready" was not necessarily the winner, for when all were ready, they were inspected for tight throat lashes, twisted traces, unlocked pole-props, tight breeching, uneven or faulty position of saddle blanket, etc., and those teams which were not perfectly harnessed were disqualified, and of those remaining that team which first announced "Ready" was declared the winner. It thus often happened that the second or third team to make the announcement was the winner. This all led not only to greater speed, but to greater care in harnessing. The results flowing from these two months of competition were remarkable. The time of harnessing was greatly reduced. Drivers got accustomed to moving with life, and became intimately familiar with every buckle, strap and hook on the harness, and the requirements governing their position, object and use. Later, these competitions were had in the darkness, that is, under conditions approaching those in the field at night. The improvement here was very great. It should be remembered that all this work was voluntary and did not interfere with platoon movements of the drill period. In the same way much extra work can be gotten out of the men along other lines of training.

It is customary for militia commands to voluntarily visit other cities or places of historic interest. In some organizations on such occasions breaches of discipline are numerous and punishments seldom inflicted because of supposed want

of authority—the trip being voluntary with each man. A sentinel on such occasions who quits his post without leave is not always punished. This is disastrous to discipline. Men permitted to do such acts are not going to draw legal distinctions between service under orders and voluntary service. The command should never be allowed to go on such trips unless under the same conditions as to discipline that would obtain if the command were on duty. On the occasions of such trips the commanding officer should call for volunteers, and when the list of those men who are going is complete, they should then be ordered to assemble for the service in question. The particular service would then be voluntary, but the men composing the command would be unquestionably under orders and amenable to regulations. Under such conditions such trips are very good training, particularly in matters of transportation and subsistence.

The general efficiency of the men is affected largely by early training. If the soldier is made to conform to customs and requirements from the moment he enlists and finds that all his comrades are treated in the same manner and that punishments follow infractions of discipline, as sure as night follows day, he soon becomes tractable. Efficient non-commissioned officers are indispensable, and they should be selected with care and discretion, and required to diligently instruct recruits in their work.

In reflecting upon the degree of efficiency which is attainable by a militia battery, the standard of comparison is, of course, the regular battery—a battery composed of men who have no other duties or responsibilities but those relating to the military service. But the ratio of attainable militia efficiency to the army efficiency is not the same ratio which the few drills period of the militia battery bear to the entire time of the professional soldier. It is said that the regular soldier is a soldier *all the time;* the militia soldier but *part of the time*. This is true; but during the entire "part of the time" which the citizen soldier is a soldier, he is doing strictly soldier duty, that is, he is receiving military instruction, being drilled or engaged in target-practice. The regular soldier, undoubtedly, as a rule, receives more of this instruction and drill and from better instructors than does the militia soldier, but to say that he is receiving such drill and instruction, or that he is doing a soldier's work *all the time* is not

correct. The amount and diversity of manual, mechanical, and laboring work done by regular soldiers about the various posts, often times to the exclusion of practically all strictly soldier work, is surprising to those not familiar with the custom. In many garrisons in northern latitudes, during the winter months (which means about one half the year), few mounted drills are held by mounted commands, and a large part of the work of the enlisted men consists of grooming and caring for horses and caring for equipment. To know how to groom and care for equipment is important, but an ordinary man can learn to do the work properly in a few months, and further practice, except sufficient to keep alive his knowledge and skill, does not make him a better or more efficient soldier. The amount of book and paper work annually done by officers and enlisted men in the army is remarkable, and we have the testimony of regular officers that the desire to cut it down by one-half is widespread throughout the service. It may be said that they have schools in the army for enlisted men during the winter months. So have they in the militia, at least in New York State. Again, in the army even during the winter the men are used to the regular life, daily accustomed to the restraints of discipline, and daily receiving the important benefits from systematic physical culture. True, and under the system outlined in this paper a large nucleus of our hypothetical militia battery will *daily* receive the same benefits. It is not claimed that militia batteries can attain the standard of efficiency of regular batteries. The more the militia officer studies, and the more he makes of his work a profession, the more convinced does he become of the importance of a large increase of the regular field-artillery, and it is only the knowledge that Congress will not provide for this increase in sufficient numbers which prompts the desire for the next best substitute, and the raising of the efficiency of that substitute to as close an approach to the army standard as is possible.

No difficulty is experienced in our mounted commands in the matter of horsemanship, and with proper officers and facilities this should be true of mounted troops in all the States. It is simply a question of physical fitness and adaptability with proper and sufficient training. At the military tournament annually held in New York City, one of the cavalry troops of this State divides the cavalry period of the

exhibition with a regular troop, and a comparison of their horsemanship is not unfavorable to the militia troop. This troop maintains in its armory about one hundred cavalry horses.

A field-battery, and in fact all mounted commands, should have field-service for at least a week or ten days in each year. When the battery receives this experience but every other year, its efficiency falls about fifty per cent. This is one of the most important points in the entire subject of the battery's military efficiency.

Every second or third year the battery should participate in the army maneuvers. The maneuvers are so manifestly essential to the nation's military welfare, that after the present year the agitation regarding their continuance will doubtless be so general that Congress will provide the necessary appropriations. Militia batteries, however, should not be sent to the maneuvers unless the United States inspecting officer has previously certified in his report that the battery is sufficiently advanced and prepared for such work. If this had been done in the past we would not have read in the recently published report of the army maneuvers at Manassas that with one exception the militia batteries were worthless. The policy of keeping at home the efficient batteries and sending to the maneuvers the inefficient batteries would not have obtained.

It is submitted in conclusion that the artillery arm is of dominating importance on the modern battle-field, that our next war must see us possessed of a numerous field-artillery and a well-trained personnel, if we are to look for military success. That least of all can this arm be hastily improvised at the outbreak of war. That aside from the necessity of an increase in the regular field-artillery, there is an imperative need for thoroughly training and preparing for war a considerable number of efficient field-batteries in the organized militia, and that such batteries can be so trained and prepared under the conditions suggested in this paper. With educated officers receiving reasonable compensation, enlisted men physically fit receiving pay for actual services rendered, with horses and *matériel* issued by the Federal Government, and armory facilities provided by the State, and with discipline rigidly enforced and maintained, as outlined above, there can be little question of the value of such batteries to

both State and Government. The additional cost per battery over and above what is now expended would not be great.

The almost inestimable importance of the artillery arm in the future, perhaps in our not remote future, would seem to show that the subject is one requiring the best attention of our General Staff.

In closing this paper reference is made to the two extracts from the messages of Washington and Jefferson, quoted above the title. How can language be formed to be more impressive and relevant to this subject?

BATTERIE DE BALISTES ET DE CATAPULTES

# IN MANCHURIA: THE BATTLE OF SHAKHE (SHA) RIVER.*

By GEORGE De SALLE.

(Translated for the Second Division G S. from *La Revu de Paris.*)

By Lieut.-Colonel JAMES ROCKWELL, JR., Ordnance Department.

II.

TOWARD one o'clock the firing slackens, shows intervals, becomes infrequent. I seek shelter from the wind at the bottom of a trench.

While opening boxes of canned provisions and breakfasting at leisure I go over in my mind the events of the morning and think what war is! When I came to Manchuria I had a thirst for epic encounters, great shocks and great strokes, heroic charges; I had then seen no wounded, God forgive me! I wished to see war, beautiful war, about which has sung every poet on earth, from Homer to Hugo, and my heart as a Frenchman was full of enthusiasm. In Trans-Siberia I recalled the great battles of old, the feats of arms of ancestors and heroes, and there came to my memory the verses about "epic battles," "heroic sounds," "steel striking steel," "the drums, the shells, the bombs, the cymbals."

Of all this, what remains to-day? The bombs, and they are shrapnel so perfect that their "heroic" sound is insignificant. What could our heroes, riddled with balls, do this morning? Burrow, as they did, and await Fate. Run, charge? Whither? Against whom? Against what? Charge against the rain, the snow, the wind? Now, at noon, the action diminishes in violence. Why? Because all are tired, and are breakfasting.

And I continued to soliloquize.

Yes, the histories of yore are becoming legends to-day. There is an end of the charges, the heroism, the bravery, the genius, which made a leader with a few men decide the victory by a bold movement or by a lucky folly. Now, when "drenched" with shrapnel, the "Old Guard" may as well "surrender," for it would serve to no good for it to die. It is all over with the

*Concluded from the July number of Journal.

man-to-man, grand bayonet and cavalry charges, in which Frenchmen used to cover themselves with glory. In some future war it may happen that men and horses may again struggle in heaps, but during this Manchurian war nothing of the kind has occurred. There has been some sabering in a few villages taken by surprise, often at night, but usually as the *sotnias* approached the guns opened. The experiment has been tried, however. In their intoxication of courage, the Russians one day *charged a battery;* the Japanese, squatted in their trenches, awaited them in their machine-shop: an officer gave some orders, some one pulled the string which set in motion those instruments of precision—in five minutes the *sotnia* was wiped out.

War, such as I have before my eyes at this moment, is a factory of death—a factory in which roar the dynamos of the batteries, and in which goes on the butchery of men as one in Chicago may see the killing of hogs. At break of day, the clock—the first cannon-shot, Russian or Japanese, it does not matter which—announces the opening. The *day's work* begins. From his office-desk—and my eyes turn toward the hill where the general is at breakfast—the manager divides up the work among his subordinates. The factory is so vast, employing nearly two hundred thousand men, that he cannot see to all of it, and he remains in his office, giving orders to his secretaries, who bustle at the desk loaded with telephone apparatus or write out the despatches which the operator transmits.

It is a fine factory. Nothing is lacking. If a man has his arm taken off by the machinery, an ambulance, quick! They are waiting in the courtyard. And the food for these machines, which consume enormously, comes from every side, incessantly. Now there is overheating, for they are overworked. They work night and day. The relieving gangs are ready. Noon, one o'clock! The clock again. The men rest, eat a morsel in haste. Not all; for there are worthy workmen; some of them have agreed not to quit work—without any double pay!

With us, those who do not quit are they of the right wing, who maintain themselves with great difficulty on the mandarin road and in the plain of the west, as far as my glasses reach. It is hateful and exasperating. Over all that boundless extent the enemy's projectiles fall—fall without cessation * * *

a rain of iron, or, better expressed mechanically, a deluge from the pump. Distance lessens the trails of the shrapnel. I picture this field of battle, however, as an orchard, all white, all in blossom, in which the branches cannot be seen among the blossoms.

The Japanese advance irresistibly. Oh, how tragic were all those points of white, killing as they advanced slowly, foot by foot, without halt, in that great peaceful and solitary plain, where not a man was visible, under that grand sunlight, so pure, so serene, so bright! And I felt that one could not struggle against that wave.

Over yonder the work was going on, without free lunch, without double pay. All my soul, all I possess of admiration and respect, went out to those men giving themselves up without reservation to their bloody task. Without double pay! * * * Their boots torn, sleepless for days, eating scarcely at all—in such moments one is not hungry—dirty, savage, always firing at an enemy whom they could not hate, not knowing him, and of whom they could only know that he was yellow-skinned. Without double pay! * * * They are dying or are going to die, and they know it and accept it, through a spirit of discipline, submission and resignation.

One day, nine months ago, the Emperor said a word, wrote a few lines. And since that day Ivan Ivanovitch has been yonder, over plain or mountain, in heat or cold, always the same, foodless, in the mire, in the marsh—*nitchevo* (no matter!)—always jolly, always good and gentle, peacefully performing his duty with the same brave resignation, after eight months of retreat and withdrawals.

How well they can die, these brave fellows! Ivan, son of Ivan, whether he comes from the provinces of the Baltic, Little Russia, the Caucasus Siberia or the Trans-Baikal, be he Catholic, Orthodox or Israelite, he meets death where he is sent. And I recall the surprised tone of the officer who once told me of it. Russia, as everybody knows, is thoroughly anti-Semitic. There were sent to Manchuria Jewish soldiers, from whom nothing was expected, and they were fully equal to the others. * * *

The shrapnel rains. What are they thinking about, all those heroes in their trenches? The projectile comes from the end of the horizon. No one knows whence it comes. They hear it coming. They guess its deadly arrival. They see

nothing. Is it for you? for me? The unseen thing bursts, and twenty men are laid low! There will be no harvesting next season in half of a village, ten thousand miles away.

I have been six months in Manchuria, and had wearied of hearing so much slander, scandal, criticism, infamy, even. How far away that all is! How it all disappears! What matters it to me now that General X—— is an ass, General Y—— a drunkard and General Z—— a gambler or thief? At the end of my glasses unseen but imagined under the destroying shrapnel, there they all are—generals, private soldiers—all whose weaknesses, all their errors, are being redeemed and expiated in this hour of grand leveling, in the face of death—purifying death. What exasperation must be theirs, what rage of impotence. Oh, to fight, to charge, to do a soldier's work! But no. This is the factory, the finished product, sent out to the unknown purchaser, to the customers who did not ask for it.

If one could but plan: "I will do so and so, and such and such will happen!" Such plans may be possible in a European war, perhaps. The experiment has not been tried since our disasters in 1870. But in Manchuria! without accurate maps, in a country rotten with spies, in the midst of a people who will do anything for money, wherever it may come from, try to make plans, to agree ahead on some secret operation! Plans, as may always be found afterward in human acts, are forged in imagination. The battle ended: "Yes, he intended this, he intended that." But Stackelberg telegraphs the general-in-chief, "The staff map showed me a blank space instead of the mountains which rise before me," and I recall also the remark of Kuropatkin, which is only a touch from Palissy, "My course will depend on that of the enemy." The Japanese fire continues to grow less frequent. * * * They use now "brisants" especially. Slowly, methodically, they search the terrain, from which one of our batteries replies. They do not find it. They will not find it all day! I feel like clapping my hands each time I see their shot miss. They fire methodically, at regular intervals. I am too far away to hear them plainly. A little jet of flame, a little smoke, and, some seconds later, a dull detonation.

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But the cannonade resumes its violence. It is about four o'clock. The Japanese on our right advance, advance;

already I must turn half around to bring my glasses on the Russian positions. In the center, our First Corps has retired a little; there the situation is about stationary. Farther to the right, the Fourth Siberian Corps has been forced from its first line, its advanced positions. And from the direction of General Stackelberg, not one shot. What can he be doing? The whole thing looks badly. I no longer expect to see Liao Yang and its beautiful Korean tower, encircled with a cloud of birds. An officer comes and asks us to leave the height; a battery is taking position on it. Already the guns are climbing. The horses strain against the steep slope. How beautiful all this, were it not war! I start in search of a farmhouse before night falls.

As usual, I find it and receive the same polite welcome. Forage is brought, and my horse devours it; poor beast, she has eaten nothing since yesterday! The streets of the village are crowded with troops. Truly, I would never have imagined that during a battle there would be so many troops * * * in the rear. I start out on foot to take some photographs. On my way, some soldiers force a door; they will take forcible lodging. A whole string of field ovens follows along. And suddenly some infantry debouches. They do not go to the south, toward the battle, but to the north, toward Mukden. What! Can it be? * * * I do not dare ask.

I return to the farmhouse. Dinner is ready. My *mafou* is already asleep. I lie down, but cannot sleep. Toward nine o'clock, too nervous to remain lying down, I go for a look at my horse. At the corner of the yard, a slight noise and low voices attract me. Some soldiers are trying to rob the woodpile. Like all Chinese houses, even the poorest, this one is surrounded by a mud wall. A head shows itself. I am seen. They disappear.

The night is full of stars. The cannonade does not cease. From time to time appear short flashes. Those are from the shrapnel. Always at work.

I try to sleep. But soon some soldiers come in. They fill the house. They also want shelter. And suddenly they notice me, become silent and constrained, and examine me. The whole light consists of a small pewter lamp, with a wick dipped in oil. They come up to me and talk.

I use my few words of Russian, point to myself, and say:

*Fransouski*. They answer "Yes" with their heads, say to me a heap of things I cannot understand, and their circle narrows. A vague uneasiness seizes me: What will become of my horse? I wish to go out. They think I am trying to escape, and several heavy hands fall on my shoulders. By chance, the lamp goes out at the same moment. They strengthen their grasp. I wait for my *mafou* to relight, as I direct him to do. The lamp relighted, I attempt explanations. A sergeant, very polite, smiling, full of good-humor, comes up; I repeat to him the few Russian phrases I know, and soon perceive it is vain to talk or act—he does not believe me. Resolved to finish it, I ask him, "*Offitsir?*"

That was what he wished. He is pleased that we are in accord—that is understood; we are going to find some officer. He makes me understand I can leave my things here, but I prefer to pack up and resaddle; I have such a good wrap and such a pretty aluminum cup. If they should lay hands on them they would be all right, after all.

My preparations are made in a few minutes. I settle with my trembling host, and, kept well in sight, I start forth into the yard, followed by my impassive and sardonic *mafou*. * * * I stop to take out a cigarette. I have lots of pockets, I search a moment for my case. When I withdraw my hand, one of the nearest soldiers jumps back. I show him it is not a revolver, but cigarettes I am taking out. His comrades joke him, we both laugh. I think of the nervousness of these men. They are ignorant. For days they have been "being killed." The Japanese devils have laid low so many of them, all around this fellow, and without his ever seeing them; all to him has become suspicious.

Here I am, then, raised to the rank of a spy—a spy in war, which honors me—and altogether, the horses following, we proceed towards a house fifty yards away. The yard is filled with soldiers and horses. A large room, lighted by a few candles stuck on the table. Two or three officers are gathered there. One is lying down, another writing, the third humming a Cossack air I know well, so sad! He grasps my hands, bidding me welcome. We traveled together from Irkutsk. I tell him my story. What he says makes the sergeant change color; humble and sorry he repeats often: "*Fransouski offitsir.*"

I also, unfortunately, am nervous and angry. And I refuse to go back to the house I came from. The officer tries in vain

to keep me. No! I shall stop in another village, and I call up my suspended decision to go to Mukden, where I wish to be at dawn to-morrow. So I set out. I soon regret this act of ill-humor.

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The night was superb, and everything about me breathed such serenity, a calmness so peaceful! Boom! roared the cannon. "We are in war," its voice recalled. A horse's step draws near. I think of the Khoungouses. I have no revolver. I come abreast of the horseman, who recognizes me by the light of the moon. Another one with whom I have drunk champagne at Harbin. Oh, feast and massacre! We dismount and chat. I ask his general impression. Roughly, with an angry, tired voice, he cries out, "We are licked."

I did not know what to say, and in silence I looked at his worn features, his wrinkled face, his sunken eyes, where could be read days of privation and fighting. Then he resumed, as if happy to ease himself: "Oh, this war! And to think that no one ever sees those swine! Do you know how one must fight now? Like your Apaches—never let himself be seen, creep up craftily, treacherously, and shoot in the back. One must live on his knees, squat in the trenches, burrow like beasts, fire Heaven knows where, or remain motionless entire days, seeing comrades fall all about him. * * * And we Russians are not built for that."

And this criticism brings up to me the vision of our hills, where men and horses stood up, while opposite, with the enemy, we could hardly distinguish shadows creeping. That was at Tachitchao.

He gave me vague details of the general operations. He knew simply that the Army of the East had failed in its plan and was retiring slowly; that our right wing had not been able to resist a formidable attack; that the Japanese were continuing to advance toward the "gap," separating our center from our right; that they were pushing their troops on like the ax in the oak-tree.

He mounted heavily. "Good-by! Good-by!" I answered. He was killed a few days later.

The cannonade slackens and ceases entirely. It is about ten o'clock.

* * * * * * * * *

October 13th. The duel is resumed at six o'clock in the

morning. I start for Mukden. On my way, I pass the village of Loudian-foun (I write this name just as my *mafou* seems to pronounce it), where the general staff now is. Again I see officers well pipe-clayed and white-gloved. Each time the same thought comes: "How strange it is! Here are those who know comfort and a certain camp luxury, while but a few miles distant are others with coats in tatters and covered with mire. Evidently, both are useful and necessary."

A storm is coming on. The rain soon falls in torrents. About noon I reach Mukden.

The horses unsaddled, I make an inspection. The two beasts have their shoes removed; one is wounded in the back. The good beasts shall have a day of rest! Several reasons keep me in Mukden. What more would I see in the fields?

The cannonade all day is terrific. The Japanese push forward their left continually. Their right has nothing to fear; it has just repulsed Stackelberg, and new troops are doubtless still going to reinforce their left, on the plains which the Russians believed so propitious for themselves.

I am going to the Russian quarter, near the station. The Japanese advance must now be considerable, the sound of the guns seems so near. I am overwhelmed with questions which I cannot answer. The truth is hard to tell. Some officers' wives are packing their trunks for Harbin. And I feel that the battle is lost. * * *

October 14th. The sound of the guns awoke me about three o'clock in the morning. About five I set out for headquarters at the village of Lou-dian-foun. All my life I shall remember that road, transformed into a morass, crowded with carts stuck in the mud.

At the end of an hour, I suddenly thought: "Why, how many officers, men and carts are going toward Mukden!" And I tried to read all those gloomy faces; I still wished to disbelieve. An unconquerable restraint held me from questioning. At last I recognized an officer, and went up to him. "There it is," said he in a tone he tried to make jesting, and, moving his arm from south to north, to point out the movement of all this mass; "Mukden!" In spite of the condition of the road I took up the trot toward the south.

At ten o'clock I was at headquarters. The roar of the guns was beyond description. In the lanes and on the road was the usual crowding, the same swarming. I came to a turn

of the road lined with houses. Over one of them floated the standard of the commanding general. Many officers, of every grade and of various uniform, waited about. The escort, in the saddle, with lances raised, stood ready. I wisely withdrew. "At such a time it is best not to be seen," I thought, and cast my glance toward a small hill near by, crowned by the trees of a temple, which my *mafou* called Quan-guatoun. I began to climb it slowly.

The undulating ground was covered with bivouacs and rows of tents. I suddenly heard behind me the form of salute in chorus. I turned and lifted my cap. General Kuropatkin was approaching. He returned my salute and made a polite gesture. "He is surely a wonder," thought I, my eyes following him. He is exactly the same man as my tourist of the tombs at Mukden, or the host of the car, who watched the march past, the other day. The same youthful, natural and simple carriage, the same calmness, the same strength, the same smiling features, marked by goodness and energy, the same total of *respectability*. I thought of all the difficulties of every kind he has had to overcome, the terrible responsibilities weighing upon him, and I remembered the saying of an officer one day at Liao Yang: "I went disheartened to see him; after ten minutes I had regained my calmness from him."

The climbing was steep and I had to dismount. Leading my horse I reached the summit and visited the temple. All of one wall hung over a ravine; two entrances, one in front, the other at the side, gave access to an interior court, where an old man with scanty and grizzled beard received us with his best smile, which cleft his toothless mouth. The small temple comprised only one large cool room, where some slight remains of incense made us lower our voices. Upon the altar was enthroned a Buddha, pot-bellied and serene; a number of images, big and little, some of porcelain, kept him company. On the walls beautiful paper pictures represented the tortures of the damned, or the usual landscape with the big tree leaning over the calm little lake, in which was mirrored the toy pagoda at the foot of the hill.

Outside, in a corner of the yard, a tree with yellowing leaves extended its branches; at each breath of wind there tumbled down innumerable beetles of every color—yellow, black, spotted, plain—my clothes were covered with them.

Our guns continued to fire, but alas! I understand quickly: all our effort now consists in holding back the invading tide of Japanese, to allow the Army of the East, so far away, to fall back on us. And I also understand why so many officers and vehicles are going toward Mukden: the order for a general retreat was given last evening. The Japanese are on the right bank of the Sha. Who will hold the river? What is the use of staying? I am disheartened by this scientific, mechanical, long-range killing. I will go back to Mukden.

Going back to headquarters I notice an odd, queer-looking apparatus, which had escaped my eye—a kind of iron turret, of slight construction, an Eiffel Tower, twelve feet high, surmounted by a broad paddle-wheel, turning with the wind and in big letters, *æro* * * * something, I do not know what * * * *Chicago*. "That's so," I muttered, discouraged, "war now is Chicago, St. Etienne, Fives-Lille, laboratories and factories."

On the way the rain recommenced. It was so violent that I sought shelter in a house of which only the roof and walls remained. Some soldiers were there, also waiting; I had coffee and brandy, which I gave to them; I wished I could give them everything.

Oh, that going back! the deep mud covering the roads crowded with Red Cross carts! Caissons and wagons follow one another, without any rest, in both senses; the water comes up to the axles; the heavy vehicles mire in spite of the desperate efforts of the horses, urged by the shouting of the men. In the soaked fields infantrymen pass by, many without rifles, with arm or head tied up with bandages. In an ambulance two young Sisters of the Red Cross are talking and laughing. What are they doing here, contrary to the orders of the commander-in-chief, who does not wish women on the battle-field? They have come to look on, and are laughing over their escapade!

A soldier is leading a restive ass, carrying a broken drum as his sole load.

Drawn by horses or by mules, without order, harnessed hurriedly, often six or seven animals to the same vehicle, heavy Chinese carts follow the train and bear the fortune of the family, all the property which has been saved. On top of the *gao-lian* is a pile of queer objects—cupboards, tables, ducks, pigs—and, perched on the summit, dejected women

cradling their children. About the vehicle march the men, often balancing at the two ends of a long pole two panniers, holding each a well-behaved baby.

They, too, were fleeing from war. Back of them the house is burning or pillaged; the doors and windows, everything of wood, has been carried off; the crop is lost; what else can they do but flee?

In the mud, lashed by the north wind from the deserts of Mongolia, under a stormy sky, Russians, Chinese, carts, guns, soldiers, well or wounded, freezing children, the whole tide is setting toward Mukden. Back over yonder, without a pause, squatted in their deep trenches, in their machine-shop, the Japanese are giving orders or working their instruments of precision, and their "drenching" goes on. I cross the branch of the railroad leading to *Fou-choun*. There stands a Red Cross camp, and I think, while pursuing my way, that I have in fact seen few wounded men, although the losses must be heavy. I hear myself called, and see at the door of a wagon one of the chiefs of the Red Cross. I confirm the bad news to him, and ask him if there are many casualities. "Yes," he answers with a grave face. "How many?" "More than fifty thousand." The figures astound me. I have been present during several days of battle, but I have not seen five hundred wounded men, while I hear of twenty thousand killed and thirty thousand wounded! The factory of death does its "fine work" in silence.

* * * * * * * * *

The 14th marked, practically, the end of the general action, which began on the 10th. It was on the 10th, indeed, the entire line was fully engaged, and on the 14th heavy fighting ceased. Let me be understood: the cannonade lasted five days longer, but without much result; the positions of the two adversaries remained practically unchanged. On the 15th the situation was stationary. And here, for me, begins the mystery.

Back in Paris, I have just read the official reports, of which I had no knowledge in Manchuria. Their perusal, instead of enlightening me, complicates the facts and perplexes me. I have shown how critical was the situation on the 14th. At Mukden, late in the night, I learned that the success of the Japanese counter-attack took on proportions disastrous to the Russian arms. A Japanese battalion was even said to have

penetrated between our right and our center, and General Kuropatkin was in danger of being turned and cut off.

What happened? The Russian reports tell us of reinforcements which might have stopped the enemy. The Japanese reports seem to indicate that they had beforehand limited their advance to the bank of the Sha. Now, on the one hand, if General Kuropatkin had been able to reinforce his right, his reserves were not by any means sufficient to definitely stop an enemy determined to profit by his advantages; on the other hand, I find it hard to believe that the Japanese were satisfied with the banks of the Sha, when Mukden offered, hardly fifteen versts away—Mukden, with its houses, its resources for wintering, its markets, its provisions. Had their advance continued, the evacuation of the city was most probable. For the Russian Army, cut off, flanked, would have had no time, I think, to prepare a serious defense of Mukden, in spite of the strong positions she possesses, I am told, on the south.

Where, too, were all these reinforcements of which the Russian reports tell? In those last days of fighting all the troops had made their supreme effort to the very last man. The exhaustion of the Japanese, exhaustion physical and total, and their lack of fresh troops and ammunition* would explain all, and much more comprehensibly. * * * But I would like to know! And I have never known. Perhaps we may know later, as about so many other things, but much later.

On the 15th, the situation remained without change. The cannonade was violent during the morning. Toward eleven o'clock it slackened, became infrequent and finally silent. The Russian outposts occupied the right bank of the Sha, the Japanese the left bank, and already, without loss of time, each began to dig, dig. After the battle of "drenching" came the battle of the spade.

I left Mukden and came to the little temple on the morning of the 16th. The artillery thundered without a stop. When about to climb the hill, I noticed an assemblage to my right, and went over there. Six men were pushing along a gun, the like of which I had not before seen—a nice little gun, on two wheels, in the muzzle of which was fastened a large stick. The men stopped every minute to answer repeated questions; it was looked over and felt of. What could it be? I went on up.

*During the 11th, 12th, 13th and 14th an average of 80,000 projectiles was fired by the Russians alone, I have been told. (The cost of one shrapnel is about $5.)

Sitting on the steps of the temple, covered from top to bottom with animals of our good Lord (ladybugs), an officer posted me. Extending his arm, he showed me in front of us, on the left bank of the Sha, near the village of Loun-dzian-toun, a little hill, encircled by several others, a ridge of heights, short and isolated in the immense plain. A crooked tree made a plume leaning a little over on the side. There is "the Poutiloff Sopka."

The Russians originally occupied this height. The Japanese seized it on the night of the 14th–15th. On the morning of the 15th General Kuropatkin decided to retake it. It was drenched with shrapnel all day. About four o'clock the assault was ordered, but failed; the Russians passed the night on the slope, and received reinforcements from Stackelberg, whose retreat had been finally effected; twenty battalions of the Fifth and Ninth Divisions. At four o'clock in the morning of the 16th, the attack was resumed, this time in force. "It was horrible; a butchery! Our men were so wrought up by all these days of fighting that no quarter was given. In an hour, with the cold steel, it was all over. The five or six trenches dug by the Japanese overflowed with corpses. Barely one hundred and fifty prisoners were taken."

And he added: "They were no longer human beings, but wild animals. I saw a man of the Nineteenth Regiment, wounded in the hand. He had with all his strength plunged his bayonet into his adversary's body, but the impetus threw him on the half-dead Japanese; his hand by chance touched the mouth of the other, who sank his teeth into it. We took a dozen guns, a field-battery (the Japanese batteries are six-gun) and five mountain guns; and that is one of them you just saw down there—a pompom (Hotchkiss). * * *

"And your loss?"

He said merely, "I heard that out of one regiment two officers are left."

And I never could learn the exact loss. But, indeed, it was a revenge. The Russians at last had charged.

On the right, that terrible right, all appears so quiet now! I need only look over that vast extent to understand that the "Poutiloff" affair is but an incident—glorious, indeed, but without influence upon the final outcome—and, disheartened, I mutter, while going back to the plain, "Will not the Japanese recapture the *tree hill* to-night?"

Down in the village, the crowd grows about the guns, which I photograph from every side. A non-commissioned officer, without my asking, scatters all who might be in the way of my work. What big children!

I had business at headquarters, and entered the main room of a *fandza*. Several officers were conversing, consulting maps and drinking tea. Their faces had an appearance of joy. * * * I fell to writing.

The steps of men on the threshold made me raise my head. Escorted by two Russians, his right hand wrapped in bandages, a Japanese came in. His cloth robe was changed to trousers and blouse of khaki. He was about five feet four or five—a big Japanese. His broad shoulders, enormous hands, sturdy bearing, gave him the air of a wrestler, an athlete. His eyes were intelligent, hardly lowered; a constrained smile showed his white teeth. He saluted politely, took off his cap, and bowed several times. The officers looked at him, and felt of his clothing, he remaining impassive. A captain turned and began to speak, naturally in Russian; my gaze followed the direction, and I noticed for the first time a person in civilian clothes, of sickly complexion, prominent nose, and crafty and deceitful expression—a kind of sick owl, brought into the light of day. This was the interpreter, a mongrel of Pole and Japanese, I was told. The conversation began, and questions were asked of the big "Jap"—the number of his regiment, brigade, etc. He answered politely, in a calm voice, and took from his pocket a small square of paper, such as they all have, on which was written his name, his regiment, *in Russian*.

The interpreter translated with a tired voice.

"That is true;" said the examining and registering officer several times.

And the Japanese left the room.

I started shortly after, and arrived late at Mukden. I was very hungry, and went to the officers' restaurant wagon. I was the first to announce the taking of the "Poutiloff Sopka." One officer remained skeptical. He rose and said to me on leaving, "That is to make up for the loss of fifty of our guns, the last few days."

We have lost fifty guns! This is my first news of it. Ah, I truly forswear numbering effectives, estimating losses and

guns lost! Upon a front of eighty versts, try to cover the entire line, note the number of wounded, count the pieces taken!

The guns were audible during the night.

* * * * * * * * *

October 17th, an empty day, at Mukden. The firing keeps up in the distance.

October 18th at dawn, I go to the station. I am told of the recapture of the Sha station. Poor station! taken and lost, lost and taken, it must be in fine condition! And this is also but a detail. The firing ceases in the course of the morning.

October 19th, I find in my notes: "Firing at intervals, situation unchanged."

Night as well as day, for a week, men have thirsted, famished, and let themselves be killed without a murmur. Weaknesses have no doubt been developed, premature retreats, disorder, even panics, but fifty thousand men have been disabled, wounded or killed, and a few kilometers have been won or lost.

* * *

October 20th, I read: "Slept all day, dead quiet." The battle of the Sha is finished.

# GIBRALTAR, THE KEY TO THE ORIENT.

TRANSLATED BY CAPTAIN A. S. ROWAN, NINETEENTH INFANTRY.*

(From *Por Esos Mundos*, for March, 1905.)

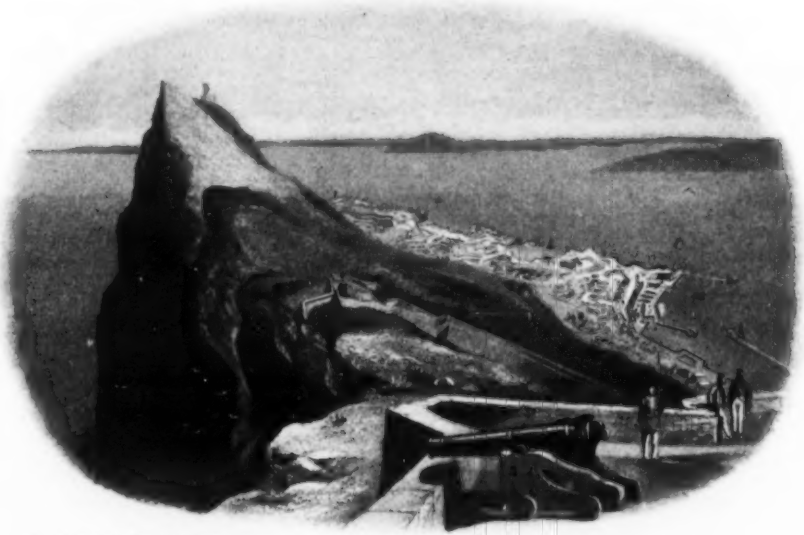
GIBRALTAR has always occupied a very important page in the history of nations. In time past, when it formed with the promontory of Abyla (to-day Sierra Bullones), the Pillars of Hercules, the Rock was considered the western limit of the world, and thence the nations of America among others took the design that characterizes their coinage—the two columns on a roll of parchment, with the inscription *Non Plus Ultra*. The daring Phenicians considered the Strait of Gibraltar the southern gate of the ocean, afterward converted into the gate to the Orient, when the genius of Ferdinand de Lesseps created the Suez Canal. To-day this strong rock resembles the image of an enormous lion, lying between the Atlantic and Mediterranean, sleeping to all appearances, but alert always and ready to make those who dare, pay dearly for their temerity.

For many years it was the custom to speak of Gibraltar as the most important fortress in the world, and literally speaking, the truth of this affirmation may be admitted; but the technical perspicacity that is conscious of its knowledge halts before accepting this statement now, for at Halifax, "The Gate to Canada," the English have constructed fortifications, utilizing the position of the port and of the strategical points that nature offers; such are the York and Spionkop redoubts, those on McNab and St. George Islands, Forts Cambridge, Ogilvie and Clarence and the Citadel. Comparing the value of the two positions it may be said that the Halifax batteries are sufficiently elevated to be impregnable to assault and to command twice the length of the enclosing

NOTE BY THE TRANSLATOR.

*As Gibraltar is a port of call for our Atlantic transports on the route New York—Manila, the following translation and illustrations from Spanish sources may be of interest to a large number of readers of the JOURNAL.

A recent number of a prominent Madrid monthly magazine (*Por Esos Mundos*) furnishes this account and as it gives an epitome of the history of the Rock and probably as much military information as is permitted to percolate through the not always impervious stratum of mystery it may be of added interest to military students.



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GIBRALTAR

lines, for which reasons the great altitude of the rock of Gibraltar is worth but little. The supply of water for Gibraltar is drawn from the rains only, while Halifax possesses beautiful and abundant springs. Finally, in the port of Halifax all the navies of the world could be anchored, while the bay of Gibraltar is but an insecure refuge. But taken all in all there is not on the globe an independent fortress that can be compared with this most important marine and military position.

The interest in all that relates to Gibraltar is great and increases each day, not only on account of international complications which may happen in the march of time, but the connected history of the rock through the conflicts that have taken place over it and around it, and through the great men that have fought in its attack and in its defense.

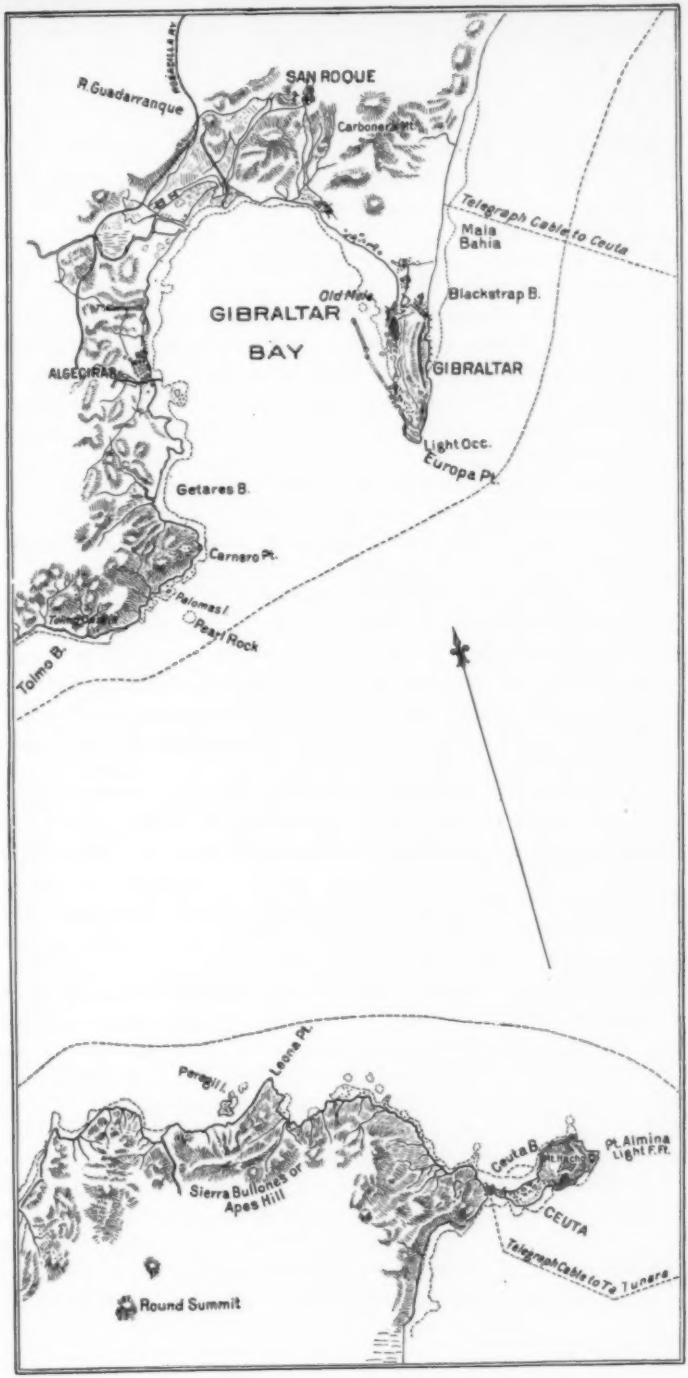
When the invasion of the Vandals broke the thread of history the northern column of the Pillars of Hercules disappeared from view and it was not spoken of again till the year of 711, in which Muza, the African viceroy of the Califate of Damascus sent a large force to Tangier, and an immense horde under the orders of the celebrated chief Tarik ben-Zeyad crossed the strait, disembarked on the west side of the bay at the point now occupied by Algeciras, and shortly afterward built the first fort upon the rock of Gibraltar, and to the opposite height he gave the name of Muza as a great honor to that chief. The rocky mass itself they baptized Gebel-al-Tarik, the name Gibraltar being the Spanish adaptation of the Moorish word.

The solid structures that Tarik built in 713 to 742 surpass the more modern works, as do also the Moorish castle that commands the present artillery barracks, the zig-zag wall that rises from the middle of the western side, the broken Tower of Homage and some other works of minor importance, now destroyed. Not during the tumultuous epoch of Moorish Spain when the Visigoth kingdom was overturned and Cordova fell into the hands of Mugith-ar-Rami; nor in the year 756 when Abd-er-Raman I, of the house of the Omayaydes founded his own kingdom, nor when, in 1010 Mahomet II, commanding the troops of Suliman, assailed the country, does there appear to have been any alterations made in Gibraltar. But toward the year of 1148 a sect of Almoravides led by Abdel-

mimmin took possession of the fort and the Great Almohad greatly increased the strength of the structures.

Guzmán the Good took Gibraltar for Ferdinand IV, of Castile, guided by a Moorish boy who paid for this act with his life. In 1333 the Moors recovered the place and on the 20th of August, 1462, Guzmán, Duke of Medina-Sidonia, tried to capture it again for the Spaniards by a stroke with Castilian mountaineers, and in reward for this exploit the Rock and its northern part were granted to this noble with the title of baron. Thanks to the rulers of Castile they were withdrawn a century later. The Algerian pirate Khairadden, known as Barbarroja or Redbeard, appeared in front of the Rock in 1540 and so destroyed the defenses and the town that it was an easy thing to sack the city and effect a great massacre. Barbarroja destroyed all that he could and Carlos V engaged the celebrated military engineer Spreckel of Strasburg. A little later John Baptist Calvi, a Milanese, began new fortifications that extended from the south side of the city to the summit. So the rock of Gibraltar from its earliest times fell under the government of ten kingdoms, sometimes with the results that were intended and at other times with less favorable termination. The eleventh government of Gibraltar appears now to be very secure beneath the claws of the British lion; but if at any time it must pass into other hands the Spanish canon of Céuta and Algeciras will be called upon to decide the matter. What would result from a continuous bombardment by the great guns situated on the African and Spanish heights is a thing that those versed in the technique of artillery have theorized upon at length. Only a practicable test can decide.

The English seized the place with greater ease than any of their predecessors. During the war of the Spanish Succession the English Navy, under orders of Admiral George Rooke and Prince George of Hesse-Darmstadt, suddenly appeared in the bay surprising the small Spanish garrison. So great was the surprise that in a short time the British ensign floated from the heights of the rock for the first time. Shortly after the seizure of the rock of Gibraltar by the English, the combined forces of France and Spain laid siege to it and for six months the defenses resisted the bombardment and the attack of the Allies who used every means then known to the art of war to recover the place. When peace was de-


SAN ROQUE
R. Guadarranque
Carbonera Pt.
Telegraph Cable to Ceuta
Mala Bahia
Old Mole
Blackstrap B.
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BAY
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ALGECIRAS
Light Occ.
Europa Pt.
Getares B.
Carnero Pt.
Palomas I.
Pearl Rock
Tolmo B.
Penon
Leona Pt.
Sierra Bullones or
Apes Hill
Ceuta B.
Pt. Almina
Light F.R.
CEUTA
Telegraph Cable to Tetuan
Round Summit

clared in 1713 Spain had to leave the rock in the hands of the English. Again this happened in the war that took place in 1727.

The last siege sustained by Gibraltar includes some unique particulars in the history of the world. It lasted four years and ended with the Peace of Versailles. During this siege a Frenchman named D'Arcon invented floating batteries that were supposed to be incombustible and unsinkable, but the English artillerists stationed on the walls destroyed them, knocking them to pieces. A Sergeant Ince, of the British artillery suggested the construction of subterranean galleries in the rock and this work was brought to a conclusion according to the plans drawn by Lieutenant Evoleth. These galleries still exist. The hero of this siege was General Eliot, whose memory is preserved in Gibraltar by means of a monument erected on the Alameda.

Gibraltar played its part also in the memorable battle of Trafalgar. It was Nelson's base. At the entrance to the strait he defeated the combined squadrons of France and Spain, which were under the command respectively of Villeneuve and Gravina, on the 21st of October 1805, and many of the dead of that day were buried in a trench of earth near the great Southern Gate.

Considered geologically the Rock is of limestone of the *solite* system, extending from north to south with a length of three kilometers and a breadth of five hundred meters. The northern summit is called Monte del Cañón (1356 Spanish feet); the southern summit, Pilón de Azúcar (Sugar Loaf) crowned by the O'Hara Tower (1361 feet). Between the two mountains there is a rock on which is placed the signal station at an elevation of 1295 feet and between it and the summit of southern point is the highest point of all, 1396 feet. A nar row isthmus, low and sandy, unites the northern end of the rock with Spain. The eastern declivity is too steep for travel, and for this reason the population is grouped on the western side.

In the wet season a thick cloud envelopes the rock and when the sun shines the great mass exhales a vapor which scorches like the rocks with which the Hawaiians cook meat. For this reason the officers and soldiers in England dread to be selected for the garrison of Gibraltar.

It is a remarkable fact that on the eastern slope of the rock

there exists a tribe of Barbary monkey, extraordinarily large, the only savage monkey indigenous to Europe.

On the southeast side before reaching this point, where the ground is quite steep, is the camp headquarters of the governor, who at present is the general and defender of Ladysmith, Sir George White, who occupies it when he does not live in the palace in the center of the city on the western side of the Rock. Passing toward the north *via* the eastern side of the Rock the visitor sees the Barracks of Buena Vista, the naval hospital, Rosia Bay and the vineyards, and from this beautiful commanding mountain point can be seen the southern Barracks—a beautiful building, the new camp for military exercises (*parades*), the dyke and the arsenal.

This post is now the station of a fine squadron in which figure the best ships of Great Britain.

The city has 20,000 inhabitants and is garrisoned by 5000 men, who with 2500 that constitute the crew and other persons of the squadron, form a military population of about 8000 men.

An important bastion called Jumper is alongside the gardens of the Alameda and protect it. Those next the wall were built by Charles V. Next comes the place called the Great Parade, and on the coast the lighthouse of Bandera Rota whence Admiral Rooke embarked. At this point is found the foot of the Arab wall whose southern gate leads to the Prince Edward Gate ascending by the forbidden slope to the signal station.

At the north of the wall is the city with its casemated barracks directly under the larger end of the Moorish castle. On this site is found the carefully constructed defenses of the landing place and further on a high track of ground, now leveled and made dry by dykes whose gates can be opened to permit the sea to enter whenever this may be necessary for defensive purposes.

A group of houses is erected on the isthmus, and residents go there to take in the sea breezes during the hot season. The hippodrome is also there; also the Protestant, Catholic, Jewish and Moorish cemeteries, the orchards and the summer camp. Beyond all this, in the neutral zone (made so by the terms of Anglo-Spanish treaty) can be seen still the ruins of the ancient Spanish forts.

The city of Linea de Concepcion is situated at the north

of the neutral zone. The northern side of the rock is the steepest and most imposing and on it are placed the best and most powerful batteries for the land defense.

This part of the great rock is best known to visitors because of its magnificent view, it is the place most frequently selected for photographs. A notable part of the defenses of the north side is known by the name of Battery Windsor. With regard to what there may be in the superior heights of the rock, in the roads that lead to them forming ziz-zags crossing and recrossing the defiles and fissures, there are few persons who are in a position to speak publicly.

For a long time the public has been permitted to visit many batteries and galleries; but thousands of tons of large caliber cannon and innumerable rapid-fire guns have been drawn up, and are still being hoisted, but to the casual eye this is not observable.

Of the number of hidden passages, reservoirs of water and artillery magazines, only the major of engineers of the place and two or three other persons can tell; but nevertheless, in all probability, within a few years all the works that are now being erected will disappear and will be replaced with something still better. In consequence of these reforms the artillery guns that to-day defend Gibraltar and of which, fortunately, they have not made more use than firing at a target, will disappear.

The population of Gibraltar faithfully represents each one of the nationalities that have successively been masters of the rock. It is a cosmopolitan population. Here one sees the Tunis (Tarso?) black dealing in meat, the blood of the Phenicians in his veins notwithstanding his Parisian dress; the good looking and lean Tuscan youth whose ancestors aided in the colonization of Carthage; the Moor, who carries burdens, with his red cloak, yellow slippers, naked legs and his scarlet turban; the Spaniard with his pallid face and haughty mien, and lastly, the present feudal lord, the English soldier, with his red coat and neck burnt by the sun, shining his military boots. Neither does Gibraltar lack the Morocco Jew with his caftan and fez, nor the Spanish Jew with his air of astuteness (for this individual is in general contraband), nor the well-clothed and well-behaved American tourist; the black and shining Nubian, undoubtedly a fugitive from Tangier, and the small Japanese ostentatiously

clothed and always awake. Such are the elements that ordinarily are met with there, and such is the current of life that flows around the rock, not only at the present time, but according to what is affirmed by ancient writings, from times antedating the medieval epoch.

At present not only the large and commodious steamers of Great Britain from India and Australia reach Gibraltar, but also the ships that go from the Atlantic to the ports of the Mediterranean. This last circumstance has caused this port to figure in the plans of Americans who can enjoy taking a voyage of recreation in winter.

COMMENT BY TRANSLATOR.

When the Treaty of Paris was concluded at the end of the Spanish-American War the assertion was made that, since the Philippines Archipelago was to become ours by purchase, the Treaty Commissioners had not been happy in their geography. The Ladrone group had been investigated and what was thought to be the only island worth having had been secured for its latent properties as a coaling station. The other islands in that group and the Caroline group as well (which might have been had for the asking, and which it is thought might have been thrown in for good measure) were left as a swarm of flies in the Great South Sea to pester us in the future. Germany at once seized the opportunity and our chance was lost. Again, when the German fleet made its hurried voyage to Kaiochiau to close in on the outlet to the Yellow Sea several stops to coal at English ports had to be made. The more recent tragic voyage of Rojesvensky's Russian fleet is an object lesson as to the absence of convenient coaling stations. Now, that we too have our Far Eastern possessions, the naval problem of how to reach them must necessarily be interesting.

If we use our larger Atlantic squadron we have the cholce of three routes to the Orient, two of them unreasonably long, almost impossible, in fact, the third without a coaling station and very costly—the Suez route. The geographical position of Céuta is fully as advantageous as Gibraltar and is not necessary to Spain, and the southern Pillar of Hercules is stout enough to fly the starry ensign and be to us of incalculable value. Were we happy in our geography?

A. S. R.

CAMP VICARS, MINDANAO, P. I.,
*July* 4, 1905.

# FIELD AND SIEGE OPERATIONS IN THE FAR EAST*

By Colonel WILLIAM R. LIVERMORE, U. S. A.
Corps of Engineers.

## IV.

## Port Arthur.

THE general character of the defenses of Port Arthur and of the methods of attack and defense are described briefly in the first article of this series. Before describing these works in detail and discussing the engineer and artillery features of the siege it is more convenient to follow the progress of events from the Battle of Nan-shan to the surrender of the fortress, and this is all that will be attempted in the present article.

After the battle of Nan-shan, May 26th, the Japanese took possession of the Kuang-tung Peninsula. Dalny was immediately occupied and became the base of operations of the Japanese in the peninsula, which was blockaded by the Japanese fleet, with its base at the Elliott Islands. The Russians retired slowly, falling back successively on lines of defense which had been hastily prepared; the first extending from Hsiao-ping-tao to the heights east of Shuang-tai-kou, the second from Ta-ku-shan to Feng-huang-chan and the shores of Pigeon Bay.

The third Japanese army under Nogi landed at Dalny, but made little progress until the 26th of June when, in connection with the fleet, it made the first great attack on the Russian position and in four or five days carried the heights of Pantao, Kensan, Wai-tou-shan, Shuang-ting-shan and Hsiao-ping-tao. On the 3d, 4th and 5th of July the Russians recaptured some of their former positions, but were unable to hold them.

For three more weeks the Japanese made no progress. On the 26th of July another combined attack was made and after four or five days the Russians were driven back to their second position, Wolf Hill was carried, and the Japanese, after a loss of 4,000 men occupied the line extending from a point south of Tu-cheng-tzu to the heights east of Ta-ku-shan, at a distance

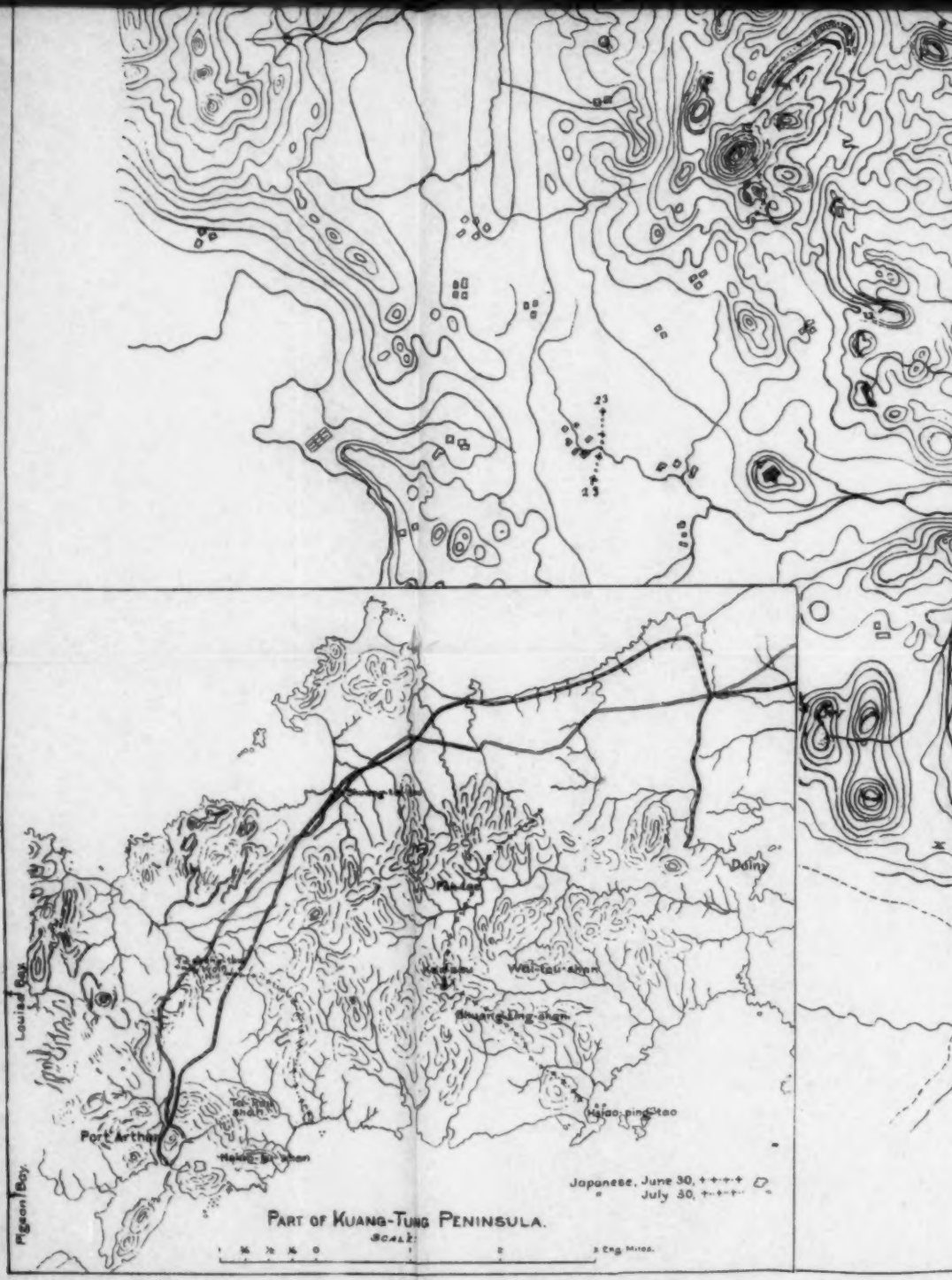
*Continued from September Number of the Journal

Po
Forts and Intermedia

# PORT ARTHUR.

LEGEND.

Forts and Intermediate Works completed. | Japanese Position, August.


Liaotung Bay
Pigeon Bay
Port Arthur
Hsiao-pin-tao
Kuang-ling-shan
Wei-tau-shan
Kaifasu
Pa-lan
Dalny
Japanese, June 30,
July 30,
PART OF KUANG-TUNG PENINSULA.
SCALE:
3 Eng. Miles.

INDEX.

i—( Erh-lung-shan, Ur-lung-shan, Rih-lung-shan

u—Jan-pi-shan

Forts
Mobi
Old
Red
Road
Old
Drink

# PORT ARTHUR.

## LEGEND.

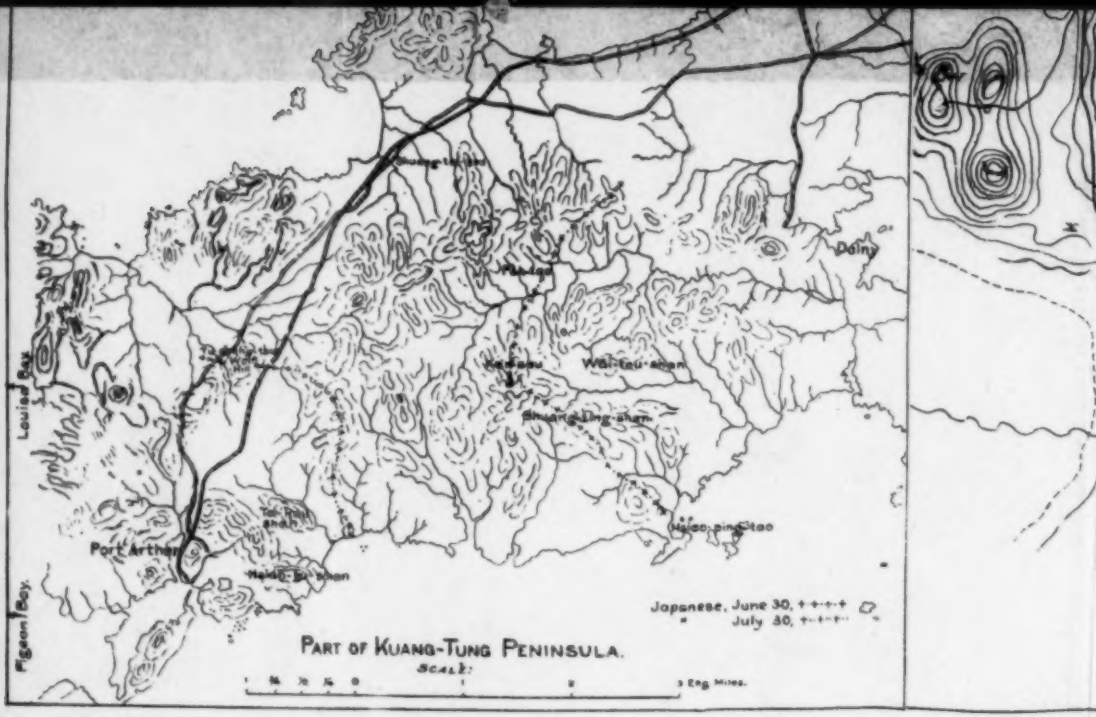
- Forts and Intermediate Works, completed.
- " " " " uncompleted.
- Mobilization Stations, Completed.
- " " uncompleted.
- Old Chinese Forts
- Redoubts.
- 11-inch Howitzers.
- Roads.
- Old Chinese Wall.
- Railroad.
- Drinking Water Cisterns

Japanese Position, August,
" " September.
" " October,
" " November,
" " December.
" " January.

The day of the month are shown by figures at end of Symbols

Scale 1/40000

4000 2000 0 4000 8000 12000 16000 20000 YDS.




*a*—Lao-tui-hui (Lao-tui-tzu is suth of "*a*.")
*b*—Pei-lou-shan? or Pe-tu-shan?
*c*—189-metre Hill
*d*—195-metre Hill
*e*—Kee-kwan, Kei-kan. Cockscomb.
*f*—South Kee-kuan, etc.
*g*—North Kee-kuan, etc. North Tung-chi-kuan-shi
*g*—West Ban-ju-shan, W. Ban-zu-san.
Palud-shuan (Eternal Dragon)
*h*—Wang-tai, Wag-tai (between "*g*" and "*i*." Hachi
yama)

Forts and Intermediate
" " "
Mobilization Stations,
" "
Old Chinese Forts
Redoubts.
11-inch Howitzers.
Roads.
Old Chinese Wall.
Railroad.
Drinking Water Cister

4000 500 0 4000

INDEX.

*i*—Erh-lung-shan, Ur-lung-shan. Rih-lung-shan
*k*—Ni-lu-san. Double Dragon
*l*—Sung-shoo-shan, Shod-zu-zan. Pine Tree Hill
*m*—
*n*—Fort Kuropatkin
*o*—Temple Hill. Lunettes
*p*—An-tze-shan. Table Mountain
*q*—Es-tze-shan. Chair Mountain
*r*—Barbette Battery
*s*—Ugowaja. 174-metre Hill
*t*—High Hill 203-metre Hill

*u*—Jan-pi-shan
*v*—Ta-yan-kon
*w*—Ja-hud-san
*x*—Ty-sin-gon
*y*—White-Wolf-Hill
*z*—Tiger Hill
*a*—Golden Hill

tui-hui (Lao-tui-tzu is suth of "*a*.")
pu-shan? or Pe-tu-shan?
netre Hill
metre Hill
kwan, Kei-kan. Cockscomb.
h Kee-kuan, etc.
h Kee-kuan, etc. North Tung-chi-kuan-shan
Ban-ju-shan, W. Ban-zu-san.
alud-shuan (Eternal Dragon)
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ama)

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# PORT ARTHUR.

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Scale 1/40000

1000 500 0 1000 2000 3000 4000 5000 YDS.

t—Jan-pi-shan
u—Ta-yan-kon
v—Ja-hud-san
w—Ty-sin-gon
x—White-Wolf-Hill
y—Tiger Hill
z—Golden Hill

of about five miles from the harbor of Port Arthur. The loss of the Russians was about 1,000 men. As the fleet in the harbor was ready to go to sea, it is possible that the Russians did not attempt to hold their advanced positions. The siege may be said to begin from the last of July, nearly six months after the outbreak of hostilities, three months after the landing at Pitsewo, two months after the battle of Nan-shan, and one month after the fight for the first defensive position.

On the 22d day of June, the 9th of July and the 26th of July, the Russian fleet made sorties from the harbor. On the 7th the Japanese landed troops at Shang-tao-wan or Louisa Bay.

As in previous months, the first three weeks of August were spent in minor operations. On the 7th, at 4 P. M., Ta-ku-shan was bombarded by a section of siege artillery and the greater portion was carried at midnight in a heavy storm of wind and rain.

On the 8th the bombardment was renewed and the summit taken. On the 9th Hsiao-ku-shan was taken.

On August 10th was the great naval battle of the war. The Russian ships were ordered to make their way to Vladivostock. Encountering the Japanese fleet not far away they were ordered to follow the flag-ship. The rudder of the *Tsesarevich* was jammed by the long range fire of the Japanese. All the Russian ships were massed in an indescribable medley. A few escaped. Most of them returned to Port Arthur.

On the 14th of August the Japanese right column commenced operations during the night and succeeded in occupying the line from Kan-ta-shan to the heights west of Lui-chia-tun, but were unable to maintain it. On the 15th they occupied the heights south of Nien-pan-kon and northeast of Liao-tung-kon.

In advancing from Nan-shan to Port Arthur the Japanese had only to encounter such defensive works as the Russians had been able to improvise, but in August they were confronted by works of a more formidable character, and the problem of attack on a fortress armed with modern weapons was to be tested for the first time on a large scale. Since the introduction of high explosive shells of rapid fire and machine guns, of magazine rifles, search-lights, etc., European engineers had recognized the impossibility of an attack by the old method of parallels and approaches formed by digging a shallow trench

and throwing up a parapet in front; but soon after the introduction of high explosives General von Sauer, of the Bavarian artillery, and others on the Continent, maintained that after a long bombardment the defenders would be so demoralized and exhausted physically, mentally and morally that it would be possible for the attacking force to advance by rushes from one sheltered position to another and finally to carry the fortification by assault and preferably by making simultaneous attacks or feints on every side.

This school of artillerists and engineers had many followers in Europe. No other new method appeared to be as popular. It was admitted that the loss of life would be terrible, but it was held that the loss in a prolonged siege might be as great and that the delay and expense would make it more objectionable than an assault.

The Japanese had learned the art of war from the officers of Continental Europe, and the method by assault was especially adapted to their temper and to their religion. The fortifications were far inferior to complete and systematic permanent works and the disastrous failure of this first crucial attempt to revive the primitive method of assault has contributed to establish the science of military engineering on firmer foundations than ever before.

Although the fortifications of Port Arthur were in a state of fearful unreadiness at the beginning of the war, the Russians had profited by the delay of three months before the landing of the Japanese and the four months during which they had been contesting the ground inch by inch.

The assaults at the end of August are thus described by the correspondent on the spot:*

During the morning of August 19th the siege guns opened a desultory fire to find the ranges, and an entire division of infantry advanced and assaulted the Russian redoubts at the foot of Rihlung Mountain. The troops captured the trenches in front of the redoubts.

The operations began in earnest at daybreak on the 20th with a bombardment of the whole line of Russian forts. Battery after battery of Japanese artillery was unmasked, the Russians apparently being unable to locate them, for they replied spasmodically.

Under cover of the bombardment the Japanese infantry made a determined general advance against the Russians' first trenches, along the railroad in the center of the Shuishi Valley, and also from Shuishi village.

Six hundred yards south of the village the way into the city was

*N. Y. *Times*, November 4, 1904.

protected by four advance half-moon forts, in the form of a hollow square, open at the rear and connected by bomb-proof trenches and having a twenty-foot moat in front.

A desperate attempt was made by the Japanese during the afternoon to capture the strongest half-moon fort. The infantry charged, cut the entanglements, crossed the moat with scaling-ladders, stormed the fort and drove the Russians back. But the real strength of the defenders' position lay in the bomb-proof trenches extending south of the other half-moon forts. They were filled with troops and concealed machine guns, which poured a deadly hail of bullets into the Japanese and forced them to retire. At about the same time the Russians recaptured the trenches in front of the redoubt in advance of Rihlung Fort.

On the right flank the Russian line was forced back. One Japanese regiment worked up the east slope and another regiment made its way up the west slope of 174-Yards Hill, under the concentrated fire of the Russian artillery, and captured the fort at the point of the bayonet at noon. The fort and hill were strongly supported by bomb-proof trenches, loopholed and with sand-bag walls, and were armed with two four-inch guns, besides other guns.

The Japanese casualties were 1400. Three hundred and fifty Russians dead were left in the position.

At four o'clock in the afternoon, during the bombardment, a fort on the ridge east of Keekwan fort was struck by a Japanese shell and burst into flames, and the Russians who had garrisoned it retired back of the Chinese wall in the rear.

During the evening a division on the Japanese left flank cut the entanglements on the slope east of Keekwan Fort Hill, and before dawn on the 21st the central division of the Japanese gained the foot of East Panlung fort, called by the Japanese East Banjusan fort, and cut the entanglements, but were repulsed.

At daylight on August 21st all the Japanese batteries of the center division concentrated their fire on the Banjusan and Keekwan forts, but despite the artillery support the Japanese were driven out of East Keekwan fort by an attack of a massed body of Russians from the Chinese wall.

At eleven in the morning, without special orders, several companies of a regiment of the center division emerged from their trenches at the foot of East Banjusan fort, and in tens and twenties charged up the slope to the broken wall of the trench around the crest of the fortified hill, under cover of a splendid shrapnel practice from their field-batteries in the valley.

The Russians behind the wall and in the fort poured out a hail of rifle bullets, and machine and quick-firing guns belched forth on the intrepid Japanese.

Twice the latter were forced back till the slope was covered with bodies, but a third attempt was made, and a score of Japanese reached the broken wall. The terrible fire of the Russians, however, started their retirement.

Suddenly, a Japanese officer, regardless of the danger, stood up, called out an order, planted his regimental flag on the wall, and was immediately riddled with bullets.

The effect on the Japanese of this sacrifice was instantaneous. The retreating infantrymen stopped in their tracks, hesitated, and then charged back, fought like demons, jumped over the wall,

charged the Russians with bayonets, and forced many of them up the glacis, over the ramparts and into the fort.

The fact that they had reached the corner wall on the dead ground enabled the Japanese to hold on, though the entire Russian fire was concentrated on that point for six hours.

The Japanese were reinforced from time to time by rushes made by their comrades up the deathway from the trenches, and they stubbornly held the corner wall and a small section of the Russian trenches till five o'clock, when two companies of another regiment worked through the trenches and attacked the West Banjusan fort, the magazine of which had been blown up by a shell a short time before.

Taking advantage of a diversion of the Russian fire, the Japanese attacking the first fort forced the Russians back, captured the fort at the point of the bayonet, and pursued the Russians along the connecting trenches to the Chinese wall. The West Banjusan fort was captured at seven o'clock after a slight resistance, the Japanese being unable to occupy it, as the magazine was blown up, but they held the trench line around the crest.

In the afternoon three battalions of Japanese reserves were added to the center division, and during the night a regiment left the division and assaulted and captured part of South Keekwan fort, and a feint attack was made at the foot of Urh Mountain in order to divert the Russians' attention from the massing of troops in the valley in front of the Banjusan forts.

Four field-guns and four machine guns were mounted in the East Bansujan fort and six field-guns and four machine guns in the West Bansujan fort.

At daylight the Russians concentrated their shrapnel fire on the captured forts, and the Japanese south of Keekwan were ejected from their positions.

The Russians, anticipating an assault, made a strong counter attack. The Japanese advance lines were driven from the forts, and were furiously attacked by large bodies of Russians, who also worked down on either side of the captured Banjusan forts to the valley, in an attempt to cut off the retreat of the Japanese from the two forts.

The Russians' move was cleverly planned, and their artillery commanders were well informed, for they opened fire with shrapnel on the advance of the Japanese supports across the valley, using starlights and search-lights with good effect in the counter attack on the Japanese forces.

A general assault then began, and for twenty minutes the whole Japanese line was engaged. The left division, from the trenches in front of the Keekwan forts, charged the fortified hills.

Part of the advance had gained the crests and shouted "Banzai!" when their triumph was cut short. Suddenly the two powerful search-lights of the east forts lighted up the Japanese lines, and Russian rifles and machine guns poured a deadly hail into the clearly visible ranks of the attacking troops. Despite the awful process of unequal annihilation, the Japanese stubbornly held the positions gained, and their machine guns quickly located and quieted the Russian quick-firers.

Finally the Japanese were slowly forced down the slopes to the trenches below.

On the west flank the search-lights of Etse and Talyangkow forts played along the Japanese trenches, preventing the movement of

troops. The Japanese artillerymen concentrated their fire on the search-lights, shells continually blanketing the lights.

Suddenly the light of Etse fort disappeared, and the light of Talyangkow fort followed. Tha Japanese infantry on the right flank advanced on the trenches close to the Russian lines, when the Etse light was flashed out in the faces of the advancing troops and Russian machine guns, previously well placed, swept their fire along the lines, while rifles blazed with a continual rattle. As the Japanese machine guns came into action they were located by the Russian starlights, and were made more distinctly visible by the search-lights, but they silenced the Russian quick-firers.

In the meantime the fight was fiercest in the center of the Shuishi Valley. The Japanese again captured the Banjusan forts, outflanking the Russian forces, and slowly forcing their lines back to the foot of the fortified hills. The Japanese were well supported, rushed forward furiously and engaged the Russians, who had gained the valley in an attempt to outflank the forts.

Though the Japanese plan of attack was destroyed by the Russian counter-attack, the Japanese fought with splendid determination. Slowly the Russians were driven back up the slopes, fighting desperately with rifles. The Russian machine guns were used with great effect when the Japanese lines were lighted up by the search-lights, while the fort guns pounded the valley. The Japanese artillery was unable to fire at this point, as the Japanese forces were mixed.

The skilful working of the Russian starlights and search-lights was utterly unexpected and bewildering. They never failed to locate the Japanese lines, which offered splendid marks for the Russian rifles and machine guns, and rendered the Japanese machine guns of little use, as they were located and silenced by quick-firers before they could do any execution. The Russians along the whole line fought in the blackest darkness, and the Japanese with the most dazzling light in their faces.

The fight lasted continuously for six hours, till dawn, when the outflankers were forced back over the captured fortified hills, followed by the Japanese, who, despite the fire of the forts, captured them and joined their force from the valley. As the Russian outflankers were driven in Keekwan Fort fired.

Before dawn on August 22d (24th?) the center division made a third attempt to capture the higher fortified ridge of Ash Hill, the new Banjusan forts, on the higher ridge, and the rear forts. The Banjusan forts were stormed and captured, the Japanese pursuing the Russians who had defended them.

With daylight the Japanese artillery started a terrific bombardment. Every gun from the extreme Japanese left to the center concentrated its fire on the eastern end of the fortified ridge.

The storm of bursting shells lasted for half an hour, during which time the awful, concentrated fire swept the bridge from end to end. Over 400 guns roared in rapid succession, until the entire ridge was enveloped in a cloud of smoke. For a time every Russian fort was silenced.

When the smoke cleared away it was seen that the left division had advanced through the captured forts. One regiment attacked the East Keekwan fort, but was repulsed. Another regiment advanced up the northeast slopes of Wantai Hill in an effort to effect a

junction with the regiment which held the neck between the two peaks.

A center supporting regiment was unable to scale the heights, and was forced to intrench at the foot.

During the night of the 24th the ranks of the Japanese were so decimated by the furious shrapnel fire of the Russians that they were forced to retire to the valley below the captured forts, and what might have been a successful general assault with the capture of the fortified ridge east of Port Arthur was converted by the Russian tactics into a repulse.

The bombardment at the close of the night's fighting was magnificently conceived. The artillery practice was beyond criticism, and the spectacle was splendid and appalling, though the amount of damage done to the forts was doubtful.

The Japanese casualties from the 19th to the 24th were 14,000. The center division alone lost 6000, and a single regiment lost 2500. Only six officers and 200 men of this regiment were left after the fight.

The retention of the Banjusan forts gave the Japanese a foothold on the fortified ridge as a result of their six days of general assault.

For two weeks the Russians were unceasing in their efforts to recapture the Banjusan Forts. They bombarded and assaulted by day the bombproofs and trenches, which the Japanese repaired by night. There were 500 men and four machine guns in each fort. The field guns which were first mounted in the forts were removed. Though the Japanese resorted to unoccupied decoy trenches and bomb-proofs, the daily loss was 100 in each fort until September 8,, when the Russians ceased their continuous efforts to recapture the forts.

The total loss of the Japanese in all three assaults in August is now estimated at 25,000.

After this crucial test of General von Sauer's method the Japanese settled down to regular siege operations. It is said that a transport loaded with siege guns and engineer outfit had been sunk by the Russians early in the war, but by September 1st the necessary material was ready to begin the attack by approaches. The exact position of the parallels and zigzags is not known, but Richard Barry, an eye-witness, says that the first parallel was about 1000 yards from the Russian lines and that the second parallel was at the foot of the fortified slopes. The trenches were made six feet in depth and without parapets in front where the nature of the ground permitted, and the earth was carted to the rear probably over a very narrow gauge tram like a Cuban sugar railway, but smaller. The Japanese were good diggers, but appear to have made no use of mechanical excavators operated by electricity, compressed air or otherwise, and their rate of progress has been estimated at about six or eight meters per day. It was essential that the trenches should be not only invulnerable, but also invisible from the Russian positions. Barry's description of the manner

in which they effected this by roofing and masking them has been quoted in a former article of this series.*

The irregular surface of the foreground at Port Arthur enabled the approach to be made at places over ground invisible to the Russians.

Where the nature of the ground did not permit the excavation of deep trenches, sand bags had to be employed for cover and at close quarters regular mining galleries were of course required as usual.

September 9th the Japanese report:†

> The tunneled passage leading to the Kuropatkin fort north of Lung-yen had already reached fifty meters in front of the fort, and the passages toward the Tung-chi-knan-shan fort, and the North fort of Tung-chi-knan-shan about 300 or 400 meters. *September* 11th.—The sapping operations in various directions had progressed more and more satisfactorily, those leading to the forts south of Shui-Shi-ying having approached to within about seventy meters in front of the enemy's fort. * * * *September* 12.—According to the reports from places of observation as well as the balloon corps, it appeared that the enemy at Tung-chi-knan-shan fort was cutting a tunnelled passage toward the East fort of Pan-lung shan * * * *September* 19.—At about one P. M., the army opened fire with siege and naval guns. From about six P. M. our gun fire was directed against a fort north of Lung-yen (Kuropatkin fort), the forts south of Shui-shi-ying, a highland southeast of a 174-meter eminence and a 203-meter eminence."

Whether from some psychological or physical motive, or to aid the military student in following the events of the siege, the Japanese appear to have marked the last days of every month from the battle of Nan-shan to the bitter end by a general assault with its attendant carnage.

> *September 20th.*—Since last night the army has been continuously engaged with the enemy, and at dawn took the Kuropatkin fort. Between 9.45 A. M. and 11.45 A. M., the army also occupied the group of forts in the south of Shin-shi-ying. At 6.30 P. M. the army took possession of two forts on the highland southeast of a 174-meter eminence, and inflicted heavy losses on the retreating enemy. Our troops charged the forts on 203-meter eminence from three sides, namely, east, west and north. At about 8 P. M., one company of our troops reached the northwestern corner of the eminence, where our force constructed a base, with the object of occupying the whole of the eminence. *September 21st.*—Having been reinforced by several hundred troops, the enemy, on 203me-ter eminence, offered a stubborn resistance, but our troops still maintained their position at the northwestern corner and continuously attacked the enemy, the fighting being of the fiercest description. *Sep-*

*JOURNAL MILITARY SERVICE INSTITUTION. May-June, 1905. Vol. 36, No. 135. p. 438

†*The Russo-Japanese War.* Kinkodo Co., Tokio. Vol. 6. pp. 709.

*tember 22d.*—Our troops occupied the northwestern corner of the 203-meter eminence, fought desperately day and night, throwing explosives with the object of driving the enemy out of the fort. Having found it impossible to maintain their position for a long time, they discontinued operations at about six P. M., and returned to their former position. *September 25th.*—From 8.30 P. M., the enemy in the forts in the neighborhood of Ehr-lung-shan concentrated his gun fire upon our tunnelled passages to the fort east of Ehr-lung-shan, At the same time about thirty Russians, under cover of the rifle fire of about 100 of their comrades, made a sortie and encountered our troops in hand-to-hand fighting, lasting some thirty minutes. The enemy then retired.

The Japanese losses in these attacks has been estimated at 4000.

Throughout all the operations in September the Russians made sorties by day and night which materially retarded the advance of the Japanese. The siege guns and the eleven-inch howitzers now began to fire with some effect on the vessels in the harbor as well as upon the fortifications.

During the first week of October the bombardment and siege operations progressed as usual; one of the Russian search lights was destroyed by Japanese gun fire. Lung-yen was occupied October 11th and the Japanese constructed a foremost position at a point 200 meters farther to the front. Near this point were reservoirs that supplied Port Arthur with drinking water.

To prepare the way for the next great assault, which according to Japanese chronology must be made at the end of October, a few advanced positions must be taken. The outwork of Hachimaki-yama stood between Erh-lung-shan (or Nilusan) and the west fort of Banjushan, and the Russian trench at the foot of Nilusan was separated from that of the Japanese by about thirty yards.* From 2 P.M. to 4.30 P.M. October 15th (or 16th?) these works were bombarded by the eleven-inch howitzers, by the naval guns and field-artillery, the latter firing shrapnel over the positions in the last half-hour of the bombardment. "Wherever one of the big shells struck, it sent up an enormous column of black smoke, from out of which would fly in all directions fragments and segments of the shell, large rocks, broken pieces of timber, sand-bags and refuse of every kind, and when the smoke had cleared a heap of rubblish marked the spot where there had formerly been a trench." At 4.30 P. M. a battalion was sent up the hill, advancing at a walk with

*London Times*, January 3, 1905.

bayonets fixed. The Russians had evacuated the position and the Japanese who had realized that it was commanded by the works in the rear poured oil over the wood work and set it on fire. At the same time the Japanese in the trench at the foot of Erh-lung-shan charged and carried the Russian trench thirty yards distant and manned by forty Russians.

The gorge of Hachimakiyama was still held by the Russians. On the 19th the Japanese report that their trenches directed to Erh-lung-shan and the north fort of Tung-chi-kuan-shan having approached quite close to the enemy's positions they were subject to assiduous obstruction from the enemy by day and night. On the 23d the Russians at Ehr-lung-shan fired explosives from wooden guns against the Japanese in the trenches. The trenches directed to the north fort of Tung-chi-kuan-shan had approached within fifty meters of the fort. October 24th. The trenches directed to Erh-lung-shan had approached within about fifty meters of the fort. The Japanese also reported "that the enemy had been pushing a tunnelled passage toward them from the north fort of Tung-chi-kuan-shan. About 9 P. M. they caused an explosion at the head of our tunnelled passage, but we sustained no casualties. This night the enemy shot at us two heads of fish torpedoes from Erh-lung-shan."

On October 25th it was announced that on the following day the general bombardment along the whole line would begin at 9 o'clock in the morning and would continue up to the morning of the 30th, when an assault would be made simultaneously against all the works sapped up to during the past month. The Japanese report:

*October 26th.*—From 8.30 A. M. our siege guns of large caliber and naval guns opened fire mainly on the Tung-shu-shan fort, Ehr-lung-shan fort, Tung-chi-knan-shan fort and the north fort on the same hill, the forts being struck no less than 250 times. * * * From two P. M. other batteries of our siege guns fired on the skirmishers' trenches on the glacis front of the Tung-shu-shan and Erh-lung-shan forts, and the trenches in the south of Hachimaki-yama, and inflicted on the enemy severe losses.

At 5 P. M. the Japanese carried the trenches in front of Lung-shu-shan and a portion of the center of the trenches on Erh-lung-shan and in the south of Hachimaki-yama. The Russians then concentrated a heavy fire on these trenches, but the Japanese held their ground. The Russians also exploded a large mine on the glacis of Erh-lung-shan, but with little

effect. The bombardment of the forts was kept up all night and the following day, October 27th, destroying parapets, dismantling guns and obstructing repairs. On the 27th the naval guns also bombarded Tzu-shan and An-tzu-shan, the arsenals and ships in the harbor. The engineers destroyed a "projecting corner" of the north fort of Tung-chi-kuan-shan. On the 28th the bombardment continued and was extended to 203-Meter Hill; a magazine was exploded in the north fort of Tung- intensity. The approaches to Erh-lung-shan reached the "outer embankment, a portion of which was duly exploded and destroyed by our force."

Another explosion made a big breach in the north fort of Tung-chi-kuan-shan. The magazine at Si-yang-kow was exploded.

On October 30th the bombardment began early in the morning. At 1 P. M. a general advance began. The advanced trenches of Sung-lung-shan and North Tung-chi-kuan-shan were occupied. At 1 P. M. Fort "P," between Pan-lung-shan and the north fort of Tung-chi-kuan-shan was carried by the Japanese, who were driven out again at 10.30 P. M. But Major-General Ichinohe, personally commanding his troops in the trenches, recaptured the fort at 11 P. M. At 1.05 P. M. a Russian fort to the northwest of Tung-chi-kuan was captured. October 31st the Japanese effected a lodgment on the glacis of North Tung-chi-kuan-shan, from which they started mining operations against the fort. The loss of the Japanese in these assaults is estimated at 13,000. Aided by the tremendous fire of guns of all calibers the Japanese had occupied a few advanced trenches and outworks of the Russians.

The first half of the next month was as usual comparatively uneventful. On the 26th as usual the great assault was made and after a few days some advanced positions were taken in front of the forts on the northern and eastern fronts.

At 1 P. M., November 27th, the Japanese concentrated a heavy fire on the parapets of Red Hill, 300 meters south of High Hill (203-Metre Hill).*

After that the infantry, advancing in widely extended order from Kin-kia-Tun and Su-kia-Tun, reached charging distance. Four consecutive charges were delivered between 3 and 4 o'clock. The fourth succeeded, but during the night the Russians made three counter-attacks, the third of which was specially furious, and drove out the Japanese.

*N. Y. Times. December 5, 1904.

On the morning of the 28th the Japanese, instead of advancing via Red Hill, made a direct move on High Hill. The attack began at daylight and was continued with desperate resolution.

The Japanese, advancing into the valley between Red and High Hills, received the fire from both forts and were decimated, but, sweeping on, they stormed the slopes of High Hill and captured the southeast corner of the northern face.

Meanwhile another force effected a lodgment near the parpet on the southwest face. These operations were very costly, both sides throwing numerous grenades down.

On the 29th the Russians made a furious counter-attack, bore back the Japanese from the southeast corner, and swept them down into the valley between Red and High Hills. They also partially dislodged the Japanese from the southwest face. The Japanese, however, clung to the trenches thirty meters below the crest.

Strong Japanese reserves were now brought up, and when these reached the fighting line at dawn on the 30th the attack was renewed against the southwest face.

Through the whole forenoon the fighting was continuous, but the Russians gave no sign of yielding.

In the meanwhile the Japanese artillery had found the exact range, and early in the afternoon poured on the southwest angle shells which mowed down the defenders, the Japanese ships also aiding with an indirect fire from Pigeon Bay.

At 5 P. M. the Russians showed clear signs of weakening. The Japanese made a renewed rush from the trenches on the southwest corner, but the Russians did not move. The casualties among the assailants were heavy.

At this critical moment reserves were poured into the Japanese fighting line, and with shouts which rang over the whole of Port Arthur, the assailants hurled themselves repeatedly against the Russians, who finally, at 7.30 P. M., broke into groups of twenty or thirty and retired sullenly.

Almost simultaneously the assailants at the southeast angle pushed home their attack, and the whole fortress was occupied at 8 P. M.

After this Red Hill was carried easily, but the same night the Russians, whose large reinforcements, summoned by telephone, had arrived just too late, delivered six desperate counter-attacks, the sixth of which continued till 4 A. M.

Till noon on December 1 the Russians repeatedly closed up to bayonet distance, and there was a series of hand-to-hand struggles, the assailants falling back and again advancing.

Finally, after terrible losses, the Russians retired to Antsz-Shan and Este-Shan, leaving the Japanese in assured possession.

The capture of High Hill is regarded as very important, as the Russian ships are now exposed to a direct fire.

It was not necessary for the Japanese to mount guns on High Hill, but the observer on its summit watched the fall of the shells from the batteries that were concealed in the hollows and behind the hills, and telephoned how far the shot fell to the right or left, before or behind the target. The observer himself was protected by a parapet, and took his observations

with a hyposcope or broken tube spy-glass. Eventually all the Russian ships were sunk in the harbor except the Sevastopol, which was sunk outside.

After the capture of 203-Meter Hill the Russians were unable to hold the positions in its immediate neighborhood, but no serious attempt was made to dislodge the Japanese by concentrated fire from Ta-yang-kou, I-tzu-shan and An-tzu-shan, evidently from lack of ammunition.

At 2.15 P. M. on the 18th of December a mine was exploded under the parapet of the north fort of Tung-chi-kuan-shan. The Japanese charged, but were for a time checked by the fire of machine guns. After a severe fight with hand grenades they carried the fort at 11.50 P. M. Defensive works were at once constructed. The Russians in retreating exploded four subterranean mines laid in the neighborhood of the gorges. On the 22d the Japanese bombarded the forts of Lung-shu-shan and Erh-lung-shan and "H" fort, also the defensive works of Hon-yang-shu-kou, which were captured on the 23d. The Russians fired from the Ta-yang-kou and Yo-hu-tsui forts and made a counter attack on Hon-yang-shu-kou which was repulsed.

To celebrate the last days of the seventh month after the Battle of Nan Shan, on the 28th of December the Japanese exploded five mines from five galleries under the front parapets of the Erh-lung-shan fort and captured them at 10 A. M., and entrenched under the protection of their heavy guns and field-artillery, and then advanced and captured the entire fort at 7.30 P. M. The fort at Pai-ying-shan was also blown up and carried on the same day.

December 31st. The parapets Sung-shu-shan fort were blown up and occupied at 11 A. M. Then the Russians immediately exploded the fougasses laid in the inner part of the fort. The Russians in a caponiere in the gorge were buried under the débris caused by the explosions. Those in another caponiere were taken prisoners, the rest of the garrison escaped. A portion of the old Chinese wall near East Panlungshan was also blown up.

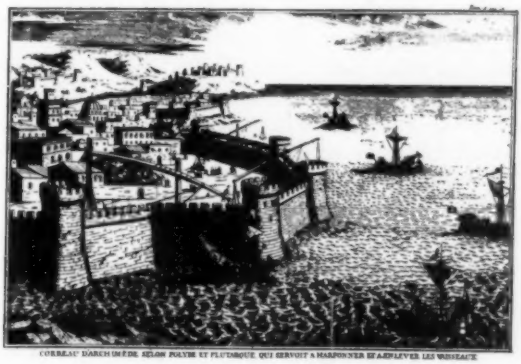
January 1st, at dawn, a breach was made in this wall in front of Wangtai. At 7 A. M. the Japanese captured "H" Fort and then the new fort of Pan-lung-shan, so that they held all the line from "H" Fort to Ehr-lung-shan. At 3.35 P. M.,

under a fierce bombardment, they occupied Wang-tai, which was blown up by the Russians as they retired.

On the 28th of December General Stoessel reported "the position of the fortress is becoming very painful. Our principal enemies are the scurvy and the eleven-inch shells. Only a few persons remain unattacked by scurvy, which mows down men and spreads despite all possible measures. The passive endurance of the enemy's eleven-inch gun bombardment, the impossibility of reply for want of ammunition, the outbreak of the scurvy, the loss of officers—all these have caused a daily diminution of the defense. * * * Now 14,000 sick and wounded are in hospital; about 300 fresh patients enter daily. * * * Now 10,000 men are under arms; they are all ill. On the 1st of January he wrote:

"Yesterday morning a terrific mine-explosion was effected by the enemy under the third fort.* * * After bombarding for two hours the enemy charged the Chinese wall. The attack was repulsed twice, but finally we were forced to give way, and at night retired to the heights in the rear. This new position cannot be maintained for a long time. Should these places fall into the enemy's hands we cannot but capitulate."

At 5 P. M. General Stoessel sent a message of capitulation which was received by General Nogi at 9 A. M. on the 2d.



CORBEAU D'ARCHIMÈDE, SELON POLYBE ET PLUTARQUE QUI SERVOIT A MARPONNER ET ACCROCHER LES VAISSEAUX

# DESCRIPTIVE, MILITARY RECORD AND ACCOUNT BOOK FOR ORGANIZATIONS OF THE MILITARY SERVICE.

By Captain HOWARD R. HICKOK, U. S. Army,
Fifteenth Cavalry.

EACH man is assigned a sheet on which is entered in tabular form everything pertaining to him. These sheets are held in a book cover having a suitable binding device, which permits opening at any page and exposes the page flat for entries and inspection. The sheets are arranged alphabetically and separated by thumb indices, thus being self-indexing. The binding device admits introducing a new sheet at any point or removing one therefrom without disturbing any of the others. The "Active Record" book will contain the sheets of only those men who are at that time members of the organization. The sheets of men whose connection with the organization is severed are transferred to a "Retained Record" book similar in character to the "Active Record." The "Active Record" of a troop of sixty-five (65) men will measure 1¼x9½x11 inches and will weigh three pounds, two ounces.

*Object.*—The object of this system is to replace the old "Descriptive Book" and "Clothing Book" and the more recent paper-boxes and loose leaf "Descriptive List."

*Objections to Previous and Present Systems.*—The "Descriptive Book" weighs six pounds, six ounces. The "Clothing Book" weighs ten pounds, seven ounces. If perchance an old book is not quite closed up, part of the records being in the new book, the weight of the books containing the troop records and accounts of individual men is doubled, being thirty-three pounds, ten ounces, to carry which on field-service or on any change of station, particularly insular and transoceanic, is practically prohibitive, both in weight and bulk.

These books, designed to fill the requirements of many years ago, now contain many features that necessity no longer

## DEPOSITS.

| Date | Amount | | Paymaster. |
|---|---|---|---|
| | $ | c | |

## CLOTHING ACCOUNT.

| Date of Issue. | Value. | | Total. | | Allowance. | | Date of Settlement. | Due S'd'r | | Due U. S. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ | c | $ | c | $ | c | | $ | c | $ | c |

# DESCRIPTION, MILITARY RECORD, AND ACCOUNTS

of ..........................................................

of ..........................................................

## DESCRIPTION.

| Age. | Height. | Complexion. | Eyes. | Hair | Mar or Sing. |
|---|---|---|---|---|---|
| yrs. | ft. ins. | | | | |

| Where Born. | Residence. | Occupation. |
|---|---|---|
| | | |

Personal marks: ..........................................................

Nearest relative, relationship, and address: ..........................................................

## ENLISTED.

| When. | Where | By Whom. | Period. |
|---|---|---|---|
| | | | years. |

Assigned per ........................ dated ........................, 190

Joined ........................ 190 , at ........................

## PREVIOUS SERVICE.

| Enlisted. | Discharged. | Co. and Reg't. | Grade. | Character. |
|---|---|---|---|---|
| | | | | |

Continuous service at enlistment ...... years ...... mos., ...... days.

Entitled to re-enlisted pay: ..........................................................

## Service Outside U. S. Proper in Current Enlistment.

| Where. | Date of Arrival Therein. | Date of Departure Therefrom. |
|---|---|---|
| | | |

## CHANGES OF GRADE.

| Nature of Appointment. | Date | Source and No. of Order. | Date Relieved. | Source and No. of Order. | Cause of Change. |
|---|---|---|---|---|---|
| | | | | | |

## CONVICTIONS BY COURT-MARTIAL.

| Date. | Nature of Court. | A. W. Violated. | Fine. | Confinement. | Time A.W.O.L. |
|---|---|---|---|---|---|
| | | | | | |

# DESCRIPTION, MILITARY RECORD, AND ACCOUNTS

of .....

of .....

## On SICK REPORT.

| From | To | In line of duty or not. |
|---|---|---|
| | | |
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| | | |
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| | | |
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| | | |
| | | |
| | | |

WOUNDS or other injuries received in service: .....

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.....

VACCINATION. Date, ....., 190 . ....Successful.

BATTLES, CAMPAIGNS, EXPEDITIONS, etc: .....

.....

.....

.....

MEDAL of HONOR, CERTIFICATE of MERIT: For.....

.....

per ....., dated ....., 190 .

MARKSMANSHIP or GUNNERY: .....

.....190 .

.....190 .

.....190 .

## ALLOTMENT.

Allotment of $..... per month for ..... months, beginning with month of ....., 190 , collected to include ....., 190 . Still in force.

## REMARKS.

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## REMARKS, continued.

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## FINAL ACCOUNTS

DESERTED DIED DISCHARGED RETIRED TRANSFERRED

at ....., on ....., 190 ,

as a ....., to ....., per .....

.....

CHARACTER: .....

SERVICE: .....HONEST and FAITHFUL.

OBJECTIONS to RE-ENLISTMENT: .....

PHYSICAL CONDITION on DISCHARGE: GOOD. BAD.

FINAL STATEMENTS: GIVEN. NOT GIVEN.

LAST PAID by Paymaster.....to include

.....190 , and has pay due from that date

to.....190

.....ENTITLED TO TRAVEL PAY.

.....

## DUE SOLDIER.

| | $ | c |
|---|---|---|
| For DEPOSITS, as per record on other side, | | |
| For CLOTHING, not drawn in kind, | | |
| For ADDITIONAL PAY, for | | |
| | | |
| For | | |

## DUE UNITED STATES.

| | $ | c |
|---|---|---|
| For CLOTHING, overdrawn in kind, | | |
| For ORDNANCE, | | |
| For QUARTERMASTER SUPPLIES, | | |
| For SENTENCE COURT-MARTIAL, | | |
| For POST EXCHANGE at | | |
| For | | |
| For | | |

Fort....., .....190 .

I certify the above is a complete record and correct state of accounts of this Soldier to date,.....

.....

.....

Captain, .....Regiment of .....,

Commanding.....".....".

requires and which present conditions render obsolete, besides not possessing others which recent conditions of the service render necessary.

The sheets recently adopted by the General Staff do not contain several features which ready reference and accuracy of record make desirable. They are kept loosely in a pasteboard box. The box will quickly get broken up and will not securely hold the sheets for any great length of time, particularly if subject to such usage as field-service or changing station would require. Tin boxes are equally objectionable.

Independently of the character of the box in which held, the very nature of the system will induce loss of the records. To replace a lost record requires considerable trouble, and most probably all the numerous items of the record could not again be collated.

*Advantages of Proposed System.*—Compactness, ready reference both as to names and subject matter of each, absence of superfluous matter and permanence of preservation. Tabulation enforces uniformity of entry, which insures accurate, quick and ready reference. This eliminates a heterogeneous mixture of items, none of which have probably been entered uniformly as to sequence of fact, date, order, authority, etc. These tabulations enable a man's record for any particular (as, for example courtmartial or sick report) to be determined at once without the necessity of searching through a long list of "Remarks," few of which bear on the item for which search is being made. Further, with a tabular system, there is more probability that a record will be correctly entered and that no part of it will be omitted, and also, that when search is being made for a part of a man's record all will be found.

*Cover and Binding Device.*—The "Loose-leaf" system with its suitable cover and binding device is a matter of fact whose value has been established. Already this system has been adopted for target records. There are, however, many forms of binding devices, some of which cannot be recommended from the standpoint of utility. The device must possess simplicity, strength, durability, devoid of injury to the record, permitting of a record being introduced at or taken from any part of the book without disturbing any other, and must permit the book to be opened flat similarly to an ordinarily bound book, for the purposes of entries and in-

spection. There are several covers of this description now used commercially. The cover submitted with this system fulfills the conditions named. That used with target records does not fully meet all conditions.

*Grouping of Subject Matter.*—The space available has to a certain extent determined the arrangement of the subject matter. The name to which a sheet pertains is placed in the upper right and left-hand corners, respectively, of the front and back, for ready finding. The man's grade is omitted at the heading, due to the changes that may occur during his enlistment. The spacing between horizontal lines is that of a "Descriptive and Assignment Card of Recruit," which time and experience has evolved and proven satisfactorily.

*Clothing Account.*—In "Clothing Account" the name of the issuing officer and the signatures of the man and the witnessing officer are omitted, as being no longer necessary. These names and signatures are relics of the days when clothing schedules, which contain these features, were submitted as vouchers to property returns. As these schedules are now retained in the organization to which a man belongs, any question as to the issue can be determined by reference to the schedule, and the necessity of repeating the signatures does not appear.

*Size and Material.*—The size of the sheet selected is that of a sheet of official letter paper, being convenient for handling as well as transmission. The sheets used in the holder should be of strong material, due to the frequent use required of them, while a sheet used to accompany a man transferred could properly be lighter. A form the size of the present "Descriptive List" was ruled out, but was decided to be too bulky and to contain too much superfluous space.

FORT ETHAN ALLEN, VERMONT.
August 7, 1905.

FORT LEAVENWORTH IN 1866

# TYPES AND TRADITIONS OF THE OLD ARMY.

## WITH THE THIRTEENTH INFANTRY IN DAKOTA

By Brigadier-General William M. Wherry, U. S. Army.

THE Thirteenth United States Infantry was rendezvoused at Jefferson Barracks, Mo., in the winter of 1865–6, reorganizing for service on the plains against the Indians. At that time it comprised three battalions of eight companies each, on paper, only one of which, the First, had been organized and manned during the war, and it was serving at posts in Kansas at the time of which we are writing. I joined the regiment Feb. 28th, from Europe, whither I had accompanied General Schofield on his mission to secure the withdrawal of the French Army from Mexico, where it was supporting Maximilian's government, established there during our Civil War in opposition to the wishes of the patriotic Mexicans and a menace to republican institutions in America. I was assigned to command Company A Second Battalion, to which I belonged as first lieutenant, in the absence of its captain, and entered upon the usual duties at such a post.

It is hardly worth while here to describe Jefferson Barracks at that date; suffice it to say it had been constructed in the early fifties and its buildings of stone were substantial and commodious, but altogether lacking in so many of the conveniences now looked upon as necessities. Of plumbing and baths there were none, and most of the kitchens were in the basements. The location was on the bluffs of the Mississippi River, with fine forest trees and for that day an ample parade. The post was crowded to its limits, for there were assembled there the 3d, 10th, 13th and 18th Infantry regiments, two batteries Third Artillery and a battalion of engineers. Col. B. L. E. Bonneville, the explorer, made famous by Washington Irving, although a superannuated retired officer, was in command and expended his strength and energies in keeping the post and immediate surroundings policed. The officers were all veterans of the Civil War, except a few lieutenants of the class that graduated at West Point in 1865, and most of the enlisted men and recruits arriving were veterans from the disbanded Union and Confederate Armies.

Many of them "were on their uppers," as the phrase goes, having spent their substance in riotous living since discharge, and unused to the steady demands of earning a living in civil pursuits, they sought refuge in the military service. As may be readily conjectured the many were the froth and foam of both armies, and were undesirable anywhere. Some would cut a throat for a quarter of a dollar. The real "snow-birds" deserted as the spring opened, but many of the

most intractable held on to get transportation to the new country west and near the mining regions, when they too deserted in shoals.

Early in March one hundred newly arrived recruits were set aside to form Company G of the Third Battalion, and I was, in addition to the command of Company A, Second Battalion, given charge of these recruits, in the absence of Capt. Frank Muhlenberg who was carried on the returns as captain of Company G, Third Battalion. In a few weeks Muhlenberg arrived and announced his intention to resign from the army in about three months, when without my knowledge it was suggested to him to do so at once, so that I, who was the senior first lieutenant of the regiment, and would succeed him as captain, could, from the recruits I already was in charge of, organize my own company to my liking. This Captain Muhlenberg generously did, and my captaincy dated from April 6, 1866. He had already left the post before I knew of his action, and it was not till the fall of 1895 that I had an opportunity to thank him in person for his magnanimity.

By the middle of May the regiment was filled up and equipped and the headquarters and two battalions were embarked for the Upper Missouri, to be joined by the First Battalion assembling at Ft. Leavenworth, Kan. The Second Battalion preceded us and was destined for Forts Randall, Thompson and Sully. We of the Third Battalion sailed May 21st for Forts Rice, Berthold, and Buford. There was a good depth of water in that uncertain stream, the Missouri, and we got along fairly well to above Omaha. We touched at Fort Leavenworth and had a brief reunion with the First Battalion, and a short stop at Omaha failed to impress us with a full realization of the future of that promising place. The Union Pacific Ry. was building then and had about sixty miles of track laid in the direction of the Pacific Ocean, and Council Bluffs, just opposite in Iowa, was the goal which three now great railroad systems were striving to reach. We were offered town lots in Omaha, then a squalid, struggling, scattered town, little more than a hamlet, at prices that seemed high, but which would have made us rich in time if we had made judicious selections, but we had more caution than money and wended our way without investing.

As we approached Sioux City it was evident the fast flowing Missouri was rapidly lowering in volume of water, and its sinuous course and frequent sand-bars and shoal places were to give us untold labor and to delay our monotonous progress. The steamers we were embarked upon were taken from the lower river trade, and were too large in every way, besides drawing too much for navigation of the Upper Missouri after the first flood from the melting snows had passed along. And in addition to the men and their immediate belongings we were laden down with supplies that were to sustain us during the coming winter. From now on it was working our passage. Here

the boat would be walked over a bar by long spars lashed to her like the legs of a spider and she was raised up and on by the donkey engine, and again one moiety of the cargo was landed and the boat thus lightened was taken over the shoal to deeper water where the other half of the cargo was deposited on the bank and then the boat went below for the first deposit and took on the second upon its return up. The soldiers shared with the crews in this labor as well as in taking on the wood for steam at the infrequent wood landings, which gave rise to much discontent and no little grumbling. After a tedious voyage of forty-two days we landed at old Ft. Rice, D. T. about eight miles above the mouth of the Cannon Ball River and some forty below where the Northern Pacific railroad now crosses the Missouri at Bismarck.

It was in an absolute wilderness. No settlement worthy of the name on the river above Yankton, nothing at all north except the fur-trading post at Fort Benton, and hardly anything east till one reached St. Paul. Fort Berthold up river was about 185 miles away by land; Fort Sully about the same distance by land down stream and both from 450 to 500 miles by the sinuosities of the river, and Fort Abercrombie on the trail to St. Paul was 185 miles away to the eastward.

Fort Rice had been established in the Sully campaign of 1863, and was constructed by a volunteer regiment It was on a high bank of the river and had no trees near it. The reservation embraced a woods and open grass-filled meadow in the bottom lands of the Missouri, near a mile above, and there was a wood reservation on the Cannon Ball, eight miles below, relied upon for our fuel.

The post was constructed in the form of a rectangle, the storehouses, barracks and officers' quarters forming the sides. but only those unoccupied being on the outside, and these were connected by a stout palisade which extended around to embrace the other buildings, and blockhouses surmounted by sentry boxes were at the diagonally opposite corners. A sally-port, with heavy and strong doors at the entrance, in the center of the east face, had the guard-house at one side of it.

About 150 yards below on the same bluff was the corral with granaries and stacks and stablings, all enclosed by palisading, and requiring a detached guard, as did also the saw mill, a little in rear and still farther down river.

The buildings were mostly composed of logs sawn in the mill to about six or eight inches in thickness and near twelve inches in width, put up in rectangular pens long enough to form four large rooms, a cross partition of logs in the center and the two other partitions of cottonwood boards sawn in the mill. Another partition ran lengthwise of the whole building, thus subdividing the rooms into two, which formed one officers' set of quarters. The building was only one story high, the roof made of slabs from the mill with a

slope from wall to wall sufficient to turn water, and covered by a sod of a foot or more in thickness, which served as a refuge and home or thousands of the myriads of rats that infested the place. One building lone was two stories high. It was built of logs, weather-boarded and shingle roofed, and contained three sets of quarters occupied by the colonel, who commanded the district, the major commanding the post, and his family, a wife and three children, and the one captain who had his wife, a bride, present. The floors of the other officers' quarters were of narrow cottonwood planks, cut like all the timber used from the river bottom, and sawed and used green, and it shrank and warped as it dried, as did the walls and partitions of the rooms, so that the floor was too uneven to carpet, the interstices were filled with earth and were dusty, and the walls warped and so twisted the door and windows as to let in the dust in summer and in winter the snow, which in that dry climate was an impalpable powder. In the mornings, after the fires had gone out in the stoves for hours, a bank of snow from two inches deep to a mere powder, would extend into the room from each window and door, for about three or four feet.

The men's barracks or quarters were of uncut logs one story high, built the same way, with the same sort of irregular floors and the roofs only differing in that instead of slabs they had brush, like hazel twigs, to support the sod, which was better for the rats and more inflammable and liable to fire.

The officers had only a meager furnishing for such quarters as they had, and very few superfluities. It may not be supposed they led a very luxurious life; but as for the men—they had bunks made of lumber, two deckers, each to contain two men, the bottoms of boards, no other springs, no mattresses, no sheets, no pillows, but instead a bedtick filled with loose straw, issued weekly, each tick to two men, and their allowance of blankets for covering, while they used great coats for pillows. Chairs were unknown, rude tables and rude benches the only furniture, and for tableware, mostly tin cups tin plates, iron three-pronged forks and bone-handled iron knives to match filled the bill. Here and there a company, with age and thrift to have a company fund, had block tinware, and once in a while one was rich enough to afford ironware china, with even a monogram on it. The government furnished nothing; there was no canteen, and a company fund was to be accumulated only in time, by management, economy and some self-denial, out of the daily issue of rations.

Life at that frontier post was not unlike life at many other such. It surely was not one round of pleasure, ease and gaiety. It was in a hostile Indian country, and although the tribes immediately about us were friendly, the malcontents under Sitting Bull were in the vicinty of the Bear Paw, and their little war parties were continually com-

ing about for plunder or bravado, and it was not safe to go any distance from the stockade alone or unarmed. Guard duty was very heavy, two nights in bed were a boon. During the summer and autumn there were daily drills, but very little target-practice, and much cutting of wood for the winter fuel and hay for the animals, which were increased greatly by the arrival of 350 head of cattle belonging to the Subsistence Department, and which was to furnish our fresh beef during the winter. Before the winter was over they became so poor in flesh, the soldiers spoke of them as "dried beef on the hoof." This herd added to the guard duty too, for it had to be driven daily to the prairie in the bottom-lands above to graze, and required a guard of at least twenty or thirty to conduct it back and forth and protect it while there, a specially burdensome duty during the bitter cold winter weather. And notwithstanding which a war party of Unca-papas swooped down on it one morning just as it reached the grazing ground and while the sergeant was posting his vedettes, attacked and dispersed the main guard, killing two men and wounding two, and was driving the whole herd to the hills. Fortunately the alarm reached the post in time for the garrison to turn out and overtake the savages, and all the cattle were recovered, except about five head, which the Indians segregated and got off with. After that a commissioned officer had to go on herd guard daily.

Among the daily fatigue duties was the hauling water in barrels from the river, for it is to be stated in contrast with prevailing conditions of the present time, where, at many posts in the United States, modern plumbing, porcelain bathtubs and stationary wash-basins, with running water, prevail, all the water used at Fort Rice was hauled in barrels, and dipped from the barrels that stood in every set of quarters. Bathtubs were unknown, and in winter, when the thermometer went below zero and stayed there, the water problem was serious. The ice in the Missouri was three feet thick, and in shallow water went to the sand at the bottom.

When we arrived at Fort Rice, July 2, 1866, the commissioned personnel consisted of Major J. N. G. Whistler, Commander of Bat. and Post; First Lieut. Wm. D. O'Toole, Adjutant; First Lieut. J. M. Marshall, Quartermaster; Capt. A. M. Powell, Capt. Chas. J. Dickey, Capt. Wm. M. Wherry, Capt. J. B. Irvine, commanding companies.

Lieutenant Marshall, in addition to his duties as quartermaster, commanded a company which was without officers, and also commanded a detachment of about forty men, taken from the five companies and mounted for escort and messenger service, which gave him a decided preponderance in the affairs of the post.

During the summer Lieuts. Phil. H. Ellis and Geo. M. Mitchell, and the Post-Surgeon, Dr. Bolliver Knickerbocker, joined. Later the roster was increased by the arrival of First Lieuts. Thos.

Little and — — Parsons and Second Lieut. James S. King. In the autumn Col. Isaac V. D. Reeve, accompanied by his staff, First Lieut. Thos. J. Lloyd, Adjutant, and First Lieut. R. A. Torrey, Quartermaster, came and established headquarters of the district he commanded at the post, being subsequently joined by First Lieut. H. C. Pratt, 13th Infantry, who was, I believe, regimental adjutant.

Captain Dickey went on recruiting duty early in the autumn, and late in the fall Captain —— Duffy came for G. C. M. duty and was caught by the winter, having to wait over for spring.

The sutlers were E. H. Gregory and brother, and the American Fur Co. had a representative whose name has escaped me, while Chas. H. Galpin, a noted plainsman, was agent of the Northwestern Fur Co.; Louis Le Frombois, a half-breed, was the interpreter.

In the reorganization of the army, which took place that summer, the Third Battalion, Thirteenth Infantry became, by the addition of two companies, the Thirty-first Infantry and I found myself transferred from the regiment I entered, and which had had Sherman for colonel, Augur and Crawford for majors and P. H. Sheridan as a captain on its rolls, to a new organization, to date Sept. 21, 1866.

In that same month I had my first and only experience in independent command of a body of troops in the Indian country. "Two Bears," Chief of the Yanktonnais, a friendly tribe of Sioux, on the East of the Missouri, sent in a runner to say the half-breeds from the Red River of the North, a British tribe, had crossed the border with contraband goods, got his "young men" drunk, and had accumulated about all the Yanktonnais winter meat and furs, and his tribe was in such a demoralized condition he wanted help to extricate the tribe from the clutches of the Red River men. I was sent out with four companies of infantry and the mounted detachment to drive away the half-breeds and bring in our Indians. After a march of four days, in which I could get no nearer the half-breeds than a day's march until they crossed the border, where I was forbidden to follow, I gathered up our Sioux and conducted them back to the vicinity of Fort Rice. They were in a pitiable condition and were so nearly stripped of their possessions they had to be fed all winter and many died for want of food and shelter.

Not long after my return from this expedition General Alfred H. Terry visited the post on his annual inspection trip, from his Department Headquarters at St. Paul. I had served with General Terry during the closing operations of the Civil War, and had found a friend in him. When he was leaving Fort Rice he asked if I would like to come to St. Paul for service on his staff. Of course I said I should be delighted to do so, and he said he would send me an order when he returned to his headquarters.

The autumn passed away without interesting incident. Drills, herding cattle, stacking hay, gathering in wood, the customary fa-

tigues and police duties and the extraordinary guard duty filled the time. Twice I got away to hunt, for a week each time. The last steamer for this year came and went about the 20th of November, and on the 22d the snow began to fall and the winter set in in earnest and to stay.

If it was dreary and monotonous before, who could measure a winter in such surroundings? The few books were soon read and reread and exhausted. There was no club, no place for social intercourse, except a billiard table or two at the sutler's, and it was so cold and inclement, walking or riding were out of the question. Time wore heavily.

One other disadvantage must not be omitted, due to the isolation and want of means of communication. The Summary Court was not of that date, and the Field-Officers' Court could not apply. Yet for most offenses the Garrison Court sufficed, but was cumbersome, and for cases beyond its jurisdiction the conditions were deplorable. When all lines of communication were open, it took nearly or quite a month with bi-monthly mails only to get the charges to headquarters, a week to get action, then another month to assemble a court, if the officers were taken from other posts, two weeks to try the case, a month to get it to the department commander and fully another month to receive his action back at the post; and all this while the victim, it may be of folly, or carelessness, or neglect only, was languishing under guard in a crowded, squalid guard-house, compelled to labor and to consort with a lot of vile criminals and cutthroats.

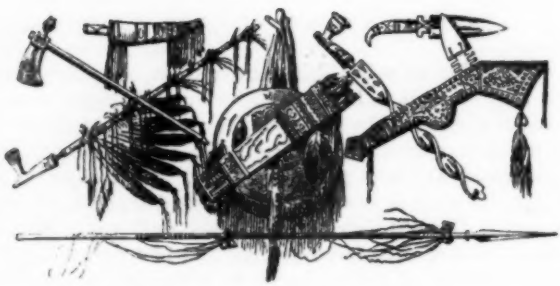
The winter like all other things came to an end, but it was not until the 11th of April. In March Lieutenant O'Toole received by the mail that came via the posts on the river an order placing him on duty at Department Headquarters, St. Paul. He left the post March 20th, with the mail party for Sully. Next day two Indians came in on snow-shoes from Fort Abercrombie with an order for me to report to General Terry, to be Inspector General, Department of Dakota. It bore date in November and had been held at Abercrombie all winter. I waited to see whether O'Toole got through, and in about a week he returned with a used up party, nearly all blinded by the glare from the snow, and disabled by the hardships of travel.

April 20, 1867, a flat boat arrived from Fort Buford, going down the river on the flood behind the out-going ice. It was owned by Farwell, trader at Buford, and Chas. Hoffman, sutler at that post, and both were on board with a crew of eleven men, discharged soldiers, quartermaster employees and miners. Two got off to stay at Rice, and O'Toole and I took their places for passage down the river. So I bade adieu to Dakota and the Sioux. We were fifteen days floating down to Sioux City, touched at Fort Sully where

Gen. D. S. Stanley, Colonel Twenth-second Infantry, was in command; at Fort Randall, where Gen. Elwell S. Otis, Lieutenant-Colonel Twenty-second Infantry commanded, and at Yankton. We spent thirty-six hours at Sioux City, took a steamer thence to Cincinnati Landing. A farm wagon from there to Missouri City, the present junction of the Sioux City branch of the Chicago and Northwestern Railroad with its Omaha branch, by rail to Clinton, Iowa, and steamer on the Mississippi from there to St. Paul.

When I reported to General Terry I found I had been under orders since some time in December of the previous year to report to General Schofield, at Richmond, Va., for duty on his staff. I got a copy of my orders and left next day for Richmond, via St. Louis, Mo., the home of my family.

March 9, 1905.



## COMMUNICATION BETWEEN THE INFANTRY IN THE FIRING LINE AND THE ARTILLERY OF AN ATTACKING FORCE.

By Brevet-Colonel A. J. Abdy, R.F.A.

(*Proceedings Royal Artillery Institution.*)

THE consideration of this subject may at first sight seem to involve questions of signaling only; a short study of it, however, discloses how greatly the whole method of attack and chains of command in both infantry and artillery are mixed up with it.

In the first place it is necessary to fully understand what is the "firing line"; this is defined in the "Infantry Training" as part of the first body of infantry to develop the attack, this body being divided into *scouts* and *firing line*, portions of which may be kept back as supports until required; these formations are adopted immediately after a force leaves the position of assembly—generally a short distance beyond the limit of the enemy's effective rifle fire.

The duties of those employed as scouts or in the firing line are clearly defined in the training book, the only duty that should be noticed here is that scouts are "to report all obstacles to movement and all advantageous positions."

The process of attack is described in general terms up to a certain point; until, under the heading of the decisive attack, there are eight paragraphs of a more or less general character, but of which the third and eighth appear to bear closely on our subject in particular.

The third reads: "Thus in the first instance, a few scouts are sent forward, who are generally reinforced until at decisive range, the immediate objective is enveloped, or partially enveloped, by a strong firing line. When this objective has been gained and if necessary, placed in a state of defense, a further advance cannot be made, as a rule, by the whole firing line, but the process of attack should be repeated against the next objective."

The eighth states that success depends on the close and intelligent co-operation of all parts of the force engaged.

The words "at decisive range" in this third paragraph give rise to the question of how far artillery can accompany infantry and to what degree this may be desirable, but before considering this it would be well to notice the duties of officers connected with the firing line. The company commander must keep the battalion commander acquainted with any change in the dispositions of the enemy and pass on any useful information received from the scouts; further he must exercise general control over the fire of his company; when two or more officers are present with a company, one will always be with the firing line; among the duties of the latter is that of observing the enemy's movements, and reporting at once to the company commander.

To turn now to the chains of command beneath the Commander-in-Chief; there is in the field the corps commander as chief executive officer; he has with him the officer commanding the artillery of the army corps, whose duties are clearly defined in "Field-Artillery Training." The commands descend through divisional and brigadier generals to battalion commanders, and so to the company commanders already noticed. As regards the artillery, however, the chain of command is not quite parallel, for though the amended edition of "Field-Artillery Training" contains instructions for the duties of an officer commanding the corps artillery and an officer commanding the artillery of a division, it would seem as if, in future, the former of these officers would not exist, while the officer commanding divisional artillery would hold a very responsible post; and if this prove to be the case the command of the corps artillery would rest with the officer commanding the artillery of the army corps. Bearing these chains of command in mind it is now easy to see that any event which may call for the assistance of artillery during the operations of the firing line, previous to its arrival within decisive range of the enemy's rifle fire, can be dealt with by the commanding officer concerned. Thus a subaltern in the firing line observes some movement of the enemy that calls for artillery action; he reports to his company command r, and the demand for co-operation passes to the commander of the divisional artillery; should this officer be unable to supply the demand he in turn asks the officer commanding artillery of the army corps who would probably be able to send off one of his R. H. A. batteries to the spot indicated.

An infantry brigade-major, who was employed on the staff in South Africa, has kindly placed his most interesting notes at the disposal of the members of the R. A. I.; they show very clearly a system that might be developed without difficulty and are as follows:

"I am strongly of opinion that the responsibility for passing back information from the firing line to the artillery should rest with the infantry. In the first place it is so much to the interest of infantry that this should be done that infantry officers can be relied on to find some means of overcoming incidental difficulties when once the importance of this service is realized. In the second place I do not think that the required information can be conveyed to the artillery in sufficient time to make it of value unless it is sent direct from the battalions in the firing line. I had some experience in South Africa which led me to this conclusion. On the 18th of February, 1900, at Paardeberg, Major Tylden's Howitzer Battery and Captain Lennox's Field-Battery were at one time definitely charged with

assisting the attack of the Eighteenth Infantry Brigade. Neither battery could see either our own or the Boer firing line. I found that the battery commanders particularly wished to know the position of our own firing line and the approximate distance between it and that of the enemy, and as my duties took me constantly from a position near the batteries to the Eighteenth Brigade and back, I tried to keep them supplied with this information. I found, however, that it took so long in getting from the batteries to the Eighteenth Brigade and in finding out the situation and in returning to the batteries, that the situation had often completely changed by the time I reported it to the battery commanders. Later in the day I was able to arrange for signal communications between the Essex Regiment and Captain Lennox's Battery, and this worked satisfactorily. I may explain that the banks of the Modder, along which the Eighteenth Brigade were attacking are covered with thick mimosa jungle and that a mounted officer, who wished to get near the firing line of the brigade had to leave his horse about 1000 yards from the firing line and to crawl for a great part of that distance through the brush. This naturally took time. Under ordinary conditions it will, I am sure, always take a long time for a mounted man to get from a battery of artillery to a position from which he can correctly observe what is going on in the infantry firing line, and return to the battery with the result of his observation. For this reason, I do not think that any system of battery scouts will be able, alone, to keep up satisfactory communication. Occasions will, probably, very often arise in which they will be able to supplement the information sent back by the infantry, but I do not think that any thing should be allowed to absolve the latter from their responsibility in this matter.

"The commanding officer of an infantry battalion in the firing line naturally places himself in a position from which he can observe the progress of his firing line, or at least receive early information about it. He should be held responsible for passing this information back to the artillery, and for this purpose he should, I think, be given two or three selected orderlies from the artillery brigade which is to prepare his advance and support his attack. These orderlies should have a horse holder to bring their horses to the nearest covered position to themselves. Their presence will serve as a reminder to the infantry commanding officer of the necessity for keeping the artillery informed of his progress. My experience at Poplar Grove, Driefontein and on the Wittebergen confirmed the conclusion I had come to at Paardeberg that what battery commanding officers most want to know is the position of their own firing line and its distance from that of the enemy. I think a simple signaling code could be arranged, something on the lines of the present code in use in the artillery for reporting observation of firing; by this code the position of the firing lines could be reported in hundreds of yards relatively to the position of the sender. It will frequently be possible to find positions with a battalion in the firing line from which short messages could be sent to the artillery either by semaphore or small flag signal, and when this is possible will, I am sure, be the most effective method of transmitting information.

"I think the responsibility of the infantry should end when the required information has reached any battery of artillery. The battery commanders should then be responsible that information is passed to all brigade or battery commanders concerned. I think

that by attaching artillery orderlies to the commanding officer of a firing line battalion, and by arranging that the latter has within easy reach a small party of signalers, trained to signal to artillery by a special code, and finally by making commanding officers of a firing line battalion responsible that the required information reaches the artillery, satisfactory communication between the two arms will be established."

Another staff officer of great and varied experience has also been kind enough to write as follows:—

"It is so important that during the attack the guns should not cease firing when the infantry approach the position, but continue with greater elevation, so as to inflict damage on the retreating enemy if they leave the position, or on their supports and reserves; but this can seldom be done with confidence and efficacy *unless there be a good system of communication** between the infantry and artillery of the attack."

Further he sends the following most interesting example which should go far to help in the evolution of such a system of communication as we seek:

"During the Jowaki campaign the Peshawur force were attacking the Sarghasha ridges which were held in strength by the enemy. The infantry advanced under cover of the 40-pr. Elephant Battery and 9-prs. R.H.A.

"—— was conducting the signaling operations under General Ross's orders, and had a signal station with the heavy guns on the right and the 9-prs. on the left.

"It was very difficult to discriminate between our native troops and Afridis; our guns unfortunately did not observe the progress our men had made and burst a 40-pr. shell among them with disastrous results. The signaling officer, hearing of the accident, heliographed to the guns in time to stop any further casualities. Having gained the ridge the force bivouacked for the night and the guns were brought into position to support the further advance.

"Next morning the advance was continued across a wide open valley toward a high range of hills with prominent spurs, and important villages, with the usual fortified towers protecting them, at the foot of the hills.

"The signaling officer lettered the spurs from 'A' to 'E', and numbered the villages from '1' to '4,' commencing from the right flank, and explained to the signaling stations with the guns and officers commanding batteries that 'shell A' or 'shell 3' would be the abbreviated signal sent; he accompanied the general with a flag of which the signalers never lost sight, and consequently when our infantry were checked at any particular point he had merely to describe the spur or village whence the opposition was coming and in a very few minutes the spot was searched with shrapnel."

Here again we have another most valuable suggestion for embodiment in a system of communication.

Under existing conditions a field-telegraph line will nearly always be laid on a battle-field, advancing with the firing line as far as may be. The proper use of this system of communication between the firing line and the artillery will be only a question of provision of artillery orderlies at the telegraph receiving station.

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*The italics are not his.—A. J. A.

In cases where a telegraph line is working, orderlies will always be provided by units, so no further action seems necessary.

How far such systems would be applicable when the infantry is engaged well within the zone of the enemy's decisive fire is doubtful; by that time a large portion of the artillery would have advanced to about 1200 yards from the enemy's position and the question would seem to become one of direct personal communication between the officers commanding battalions in the firing line and brigade or battery commanders nearest to them.

Frequently, too, batteries will have to advance again closer into the enemy's position than 1200 yards; it is easy to imagine questions of terrain or disposition of the forces of the defense which might necessitate such a move; in this case the commander of such a battery must place himself unreservedly in the hands of the infantry officer on the spot where his battery comes into action. This is most necessary for two reasons: the first, that as the battery has been sent for at the request of, or on the suggestion of this infantry officer, he alone can point out the object to be achieved and be responsible in all but pure gunnery details for its achievement; the second is one that reflects on the R.F.A. generally, viz., a prevailing want of knowledge of purely infantry tactics by officers of that branch.

In connection with this latter point, a battalion commander of great experience in many parts of the world, both regimental and on the staff, writes as follows:

"In our service the feeling of active and whole-hearted co-operation between infantry and artillery is but of comparatively recent growth, is not so strong as it ought to be, and is nothing like so strong as it is in some of the best foreign armies. * * * The infantry is after all the arm that in ninety-nine cases out of 100 decides the issue of the fight. * * * All artillery officers down to the youngest must at a glance be able to recognize infantry formations, discern at once what they are up to, and be able to follow intelligently and clearly, all infantry orders that may be passed to them for information." He goes on to advocate that every officer of the R.F.A. should, before promotion to the rank of captain, be attached for two months to an infantry battalion during the drill season.

Assuming artillery officers to have acquired this knowledge, he further advocates that in action every brigade, or single battery working alone, must have one officer specially told off for reconnaissance duties, to watch the fight, and report clearly what the infantry are doing.

His suggestion is excellent, and if only the knowledge were acquired, the officers would seem to be ready to hand in the persons of orderly officer to the officer commanding divisional artillery and adjutant to a brigade of field-artillery.

When once guns are in action and a brigade's tactical work temporarily at an end, a divisional colonel or brigade lieutenant-colonel would send his staff-officer on reconnaissance and observation duties of the exact kind indicated by our battalion commander.

The smaller the staff an artillery commanding officer has near him the better, and an adjutant who can read the varying moves of the infantry firing line aright, can recognize a useful artillery position in or near the firing line and can at once signal any news correctly to his colonel, will be far better employed than at the colonel's side,

and should prove a valuable means of help in the solution of the question under consideration.

To sum up: Within the zone of decisive rifle fire the question of communication between artillery and infantry seems to become one of mutual and personal co-operation between battery commanders and officers commanding sections in the firing line.

Previous to this stage the following points seem to be established:

(*a*) Officers commanding battalions in the firing line should be responsible for the transmission of messages from the firing line to the artillery, whether by telegraph or by signal.

(*b*) The artillery should provide orderlies for attachment to these officers commanding battalions.

(*c*) A code of signals as suggested should be drawn up and practiced; it should provide for the indication of different points on the battle-field, also for signals denoting the variations of artillery fire, and the localization of our own and the enemy's firing lines.

(*d*) There should never be any cause for doubt as to who may be the artillery commander with whom the firing line infantry signalers are to communicate.

It should not be difficult for two staff officers, say the brigade-major Royal Artillery, Aldershot, and the D.A.A.G. for signaling, Aldershot, to work out a scheme on these lines.

The only case not dealt with is one of pressing urgency where the officer commanding a battalion in the firing line finds that artillery must be sent forward at the earliest possible moment, there is no time to send farther than to the nearest brigade or battery commander; there is little doubt that each will rise equal to the occasions, and that the first intimation of the need for help that the divisional commander receives will be the sight of one of his batteries moving at its best pace to the assistance of its comrade infantry.

This article is written not as a solution of the question of communication, but as an indication of the direction from which a solution may most directly and most usefully be sought.

It would be presumption to think that more than the fringe of the subject has been touched, but it is hoped that enough has been written to lead to the production of further evidence and full discussion; and, when the time comes for action, that the whole matter may be placed in the hands of two really capable officers who may be given plenary powers to carry it through without the delaying intervention of a committee.

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## A COMPANY OF RUSSIAN MITRAILLEUSES AT THE BATTLE OF LIAO YANG.

Translated from "Revue d'Artillerie," January, 1905, for Proceedings R. A. Inst.

By Colonel A. H. C. Phillpotts, R.A.

THE employment of machine guns in modern warfare is a problem which has not been definitely settled, owing to not having so far received the sanction of experience. We could not as a matter of fact draw any definite conclusions from campaigns so different from those in Europe as that of Cuba and the Transvaal. The Russo-Japanese War on the other hand is of a sort that is bound

to supply us with valuable information on this as well as on other subjects at present shrouded in doubt. For this reason we think it may be of interest to give a description of the operations of a Russian company of machine guns.

The following appeared from the pen of an officer of this company, in the *Russki Invalid*, of October, 1904.

So far no account of mitrailleuses has been written during the present war.

Seizing the opportunity of a pause in the operations at the village of Fow-Lin, near the Tombs of the Emperors, I take up my pen and hasten to write down what I saw during a trek of 9000 verstes (6000 miles) and three engagements, one of which continued two days at Liao Yang.

We left the town of O. with only a small detachment of two officers, thirty-four men, the matériel and horses. At the time of departure there were the usual toasts, champagne and tears, the railway guards' whistle and we were off!

The first thought that enters one's head at the sound of the railway whistle and the roll of the railway wheels is this: Where shall we stop? I take up the itinerary and I find, Liao Yang.

In any case we are not in a fit state to go thus far where hard work is to be encountered and one ought to be completely organized and ready to take one's place in the front line. From the commencement of this long journey the first and greatest annoyance was the consciousness of great responsibility and not knowing how, where and when we were to stop and be provided with three officers, sixty-seven men and twenty horses.

We certainly did not know the special rôle that we were destined to play on the field of honor. I devoted three years to preparing myself and I have come to the conclusion that a good mitrailleuse gunner is not made in less time. We have our rules, our manuals and our instructions, of the existence of which very few have any knowledge. I have a proof of it now at this moment.

When in the month of August I put this question to one of the chiefs of a cavalry unit which had operated in the south of Manchuria: Would not my mitrailleuse be useful to the cavalry to combine the fire of infantry with its own rapidity of movement? This was his answer.

Mitrailleuses are only for use in the way that the Japanese employed them.

Were they not good judges?

We do not require layers. Our troopers know how to fire with rifles, we can equally well recruit our own mitrailleuse gunners.

A second commandant of a certain unit suggested to me the use of his matériel and of his men to dig trenches for mitrailleuses, ignorant of the fact that each company has in its second echelon eight shovels and that each gun captain has under his charge one mitrailleuse, one horse, one carriage and unfortunately also one rifle with its bayonet. The trenches for eight mitrailleuses require 120 men with sixty large shovels, working for from five to six hours according to the nature of the ground. It is obvious that our specialities are not universally known.

One of two things should be done. Either our arm should be specialized, or it should be put into the hands of the infantry, that is to say, hand over one or two mitrailleuses to each infantry regiment.

But we believe that the experiences of war will show the necessity for regarding mitrailleuse detachments as a new and distinct arm.

I hope at another time to discuss the future of mitrailleuses, just now I will describe the rôle of mitrailleuses at the action of Liao Yang, in August, 1904.

My mitrailleuses received their baptism of fire from the enemy's artillery at Da-tchi-chao on the 11th (24) July, when horses and men remained fifteen hours under a cross fire. To remain thus under the enemy's projectiles with folded arms, unable to work, was most disagreeable, although the losses were slight. Two men and one horse wounded.

On the 16th (29th) August, an order of the commandant of the division, of which my mitrailleuse company formed a part, detailed it for work on the right flank of the position, where it occupied the wood, south of the village of Goutsiatsy, on the night of the 16th to 17th (29th to 30th) August.

My situation was as follows:

On the left, at 400 paces, the embankment of the railway, behind the heights of the Liao Yang position. In front of these heights was the village of Maietoun, with two mamelons to the south of the village. The village of Maietoun, as well as all the heights, were occupied by the N—— Regiment. In front to the south of the village of Goutsiatsy the high millet had been cut down for a distance of 650 m., and beyond one could see at about 2 km. the village of Bésymiannoï and 3 km. off the village of Batchjaotsiatai. The mamelons on the east were about 2 km. from the borders of the village of Goutsiatsy.

It was the 17th (30th) at 8 in the morning that contact was established with the advanced fractions of the enemy and the frontier guards assisted by two companies of the N—— Regiment near the embankment, close to the south redoubt. The mitrailleuse company could not owing to the distance, 2150 m., take part in this affair. Eventually toward 10 o'clock some mounted men showed themselves near the railway. Fire was opened on them from the summit of the conical hills these men threw themselves into the high millet crop, to the west of the railway embankment, but one could follow them through the waving of the crop and a little further, in a part where the millet was less thick, at a distance estimated approximately at between 1250 to 1300 paces (about 900 m.) from the mitrailleuses, one could perfectly distinguish the troopers and behind them the pack animals and their grooms. It was clear that a mountain battery was endeavoring to advance without being seen in order to take in reverse by its fire the two conical hills occupied by two battalions of the N—— Regiment.

The target was an excellent one for the mitrailleuses, it was bound to take instant advantage of the favorable moment to annihilate the battery. There was no time for getting a bracket. Fire was opened at once at twenty-five paces echelon, the first gun at 1200.

As soon as the fire was opened, the battery inclined to the right toward a thicker part of the millet, but it was too late. Every living and moving object fell under the hail of bullets.

The mitrailleuses had fired 6000 rounds, but the importance of the objective justified the expenditure. I ordered cease fire one minute and a half after it commenced, because there was no further objective for our fire

Two hours passed in complete peace; there were not even single shots fired against us. Toward midday a slight movement was no-

ticed across the railway on the western side of some single men who were trying, after having occupied the railway embankment, to take us in reverse. This could not be allowed. On six different occasions fire was opened at different elevations with rapid continuous fire. As the Japanese passed one by one at different distances one had to use echelonned sights. As they found that this movement was not successful, the Japanese ordered a steady, regular attack against the village of Goutsiatsy by means of successive swarms of skirmishers, but their repeated attacks only allowed them to advance as far as the spot where the millet was mown. Up to nightfall it was impossible for them to move a yard forward.

Nightfall rendering the mitrailleuses impotent permitted the Japanese sharpshooters to approach within easy firing distance and until morning, almost without interruption, they kept us awake by a fusilade which in truth caused us very little loss. At daybreak we fired a "tape full" of bullets to clear the isolated riflemen out of the whole extent of the millet.

Complete peace then reigned for half an hour, then some shots at intervals gave us to understand that there were a small number of riflemen near the spot where the millet was cut. One only had to lift the hand, the head, a cooking-pot, or some other object above the embankment when immediately one heard the crack of shots and the hissing of bullets.

These riflemen became so annoying that certain men asked permission to go and drive them out with the bayonet. I gave them permission and fifteen men taken from among the horse holders and the gunners and led by a non-commissioned officer jumped from the enclosure.

The Japanese to the number of twenty-five rushed to meet them. An officer who was with them, threatened by the bayonet of the soldier Ch—— threw down his sword and wounded the latter in the foot with his revolver. The officer was at once impaled by the bayonet of the soldier G——. Two men carried Ch—— behind cover to have him attended to. The non-commissioned officer S—— killed three Japanese with his bayonet which, however, unfortunately stuck in the body of the third man so that he could not withdraw it and a fourth man shot him at point blank. This Japanese soldier was at once killed by soldier A—— and the five dead men lay in a heap. This hand to hand struggle only lasted a few moments; there remained no living Japanese in front of us and until 2 in the afternoon no other shot was fired at us. We were thus able to rest a little and make a repast of biscuits and water and contemplate our trophies; some rifles, an officer's sword, etc.

At 3 in the afternoon, some Japanese collected near a small bridge over the railway, one of them signalling to his people with a small yellow flag. This went on for about an hour before the isolated riflemen could reach him owing to the distance 1050m. I then ordered the fourth section to move him from the bridge in order to cause the signals to cease. The section commander happily chose the moment when two Japanese came from under the bridge with the flags, fired his first gun at 1025m., the second at 50m. further, and the signalling stopped.

At about 5 o'clock a movement of a chain of signallers commenced in the millet, with a view to turning our flank right near the village of Baïtsiahagouavo, where the millet had not been cut and where we

constantly had to fire into a hidden road in the millet, leading to the village of Datchjaotsiataï.

It was not until 7 in the evening of the 18th (31) August that the Japanese decided to drive the mitrailleuses from the village of Goutsiatsy by artillery fire. Having learned that their infantry had undergone a check, they had established in the village of Datchjaotsiataï a battery which overwhelmed us as well as the village with shrapnel, bursting shell and case.

Although the men were sheltered by the mud wall, we had many wounded and were not able to breathe freely till nightfall, when the fire, to which we were absolutely unable to reply, ceased.

At 9 in the evening, I received orders to leave the position. In two days' fighting we had had 30 per cent. losses in the personnel serving the mitrailleuses and we had fired 26,000 rounds.

At 2 in the morning of the 19th (1st) August, furious shouts of "banzaï," "banzaï," uttered by the Japanese were heard, these latter threw themselves against our compatriots, but on arriving at the village of Goutsiatsy they found the mitrailleuses no longer there, being as a matter of fact safely ensconced behind Liao Yang.

The task which the company had been set, namely to prevent the Japanese from taking in reverse the conical hills and the village of Maïetoun, had been fully carried out by the mitrailleuses.

The company commander, Captain Sournie, received for this duty the Order of the Fourth Class of Saint George, all the officers received decorations and the men ten crosses of Saint George.

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The first conclusion we come to from this account by the Russian officer is the well-established fact of the impossibility here shown for mitrailleuses being able to fight artillery.

This conclusion agrees with the teachings of the War of 1870; it can never be disputed by anyone. Under a well-directed artillery fire, mitrailleuse companies can only cease fire, take cover and await a favorable opportunity to reappear. The rest of their rôle is comparatively easy, owing to the small visibility of their weapons.

At short distances, such as 1000 meters, destructive effect can be obtained on personnel, even when moving, without ranging, merely by employing rapid, continuous and progressive fire. This is the way the Japanese mountain battery described in the foregoing was attacked. In the same way at these short distances individuals may be fired on.

At distances beyond 700 meters, the Russian mitrailleuses showed themselves invariably superior to lines of riflemen, whom they always succeeded in stopping in open country.

The Russian seems to conclude that it is useless to make use of mitrailleuses at ranges over 2000 meters.

The expenditure of ammunition was by no means excessive. Six thousand cartridges representing as a fact the same number of projectiles as twenty shrapnel, and they take approximately the same time to be fired. To obtain the same number of shots in the same time from infantry the employment of at least 400 men would have been necessary, and even then, the result would have been probably inferior.

On the other hand, the expenditure of 26,000 rounds in two days' fighting, being 1660 per mitrailleuse per day, does not demand any exaggerated supply.

The Russian mitrailleuse companies carry with them into action 5850 rounds per gun.

Mitrailleuses should always use rapid progressive fire, but as with this weapon ranging is often very difficult or even impossible, it is indispensable to have recourse to the employment of instantaneous telemeters, and above all to reconnoiter as minutely as possible the entire zone of action of the guns. Otherwise stated, mitrailleuse companies should always behave like batteries in a position of readiness and always be prepared to open a well-directed aimed fire on any point.

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## LONGEING AND TRAINING AT OBSTACLES.*

By Count Raoul de Gontaut-Biron, Former Riding Master at Saumur.

*Translated for the Second Division, General Staff, United States Army, By Captain CECIL STEWART, Fourth U. S. Cavalry*

### TRAINING THE HIGH JUMPER.

If it is desired to develop a horse into a high jumper, his training must be pushed further, for hitherto he has aquired only sufficient knowledge to profit by lessons of more and more nicety which should perfect his education over obstacles.

It is with an eye to this improvement that we have dwelt quite particularly upon *docility on the longe, absence of pause before jumping* and *the latter being done squarely by the horse.* We should scarely have had to speak of these conditions if our sole aim had been to turn out a hunter, suitable for riding over, at relatively diminished gaits, regions of sufficiently infrequent and not serious obstacles; neither should we have said that longeing over obstacles ought to be considered as quite difficult of execution.

But our aim being to make a hunter capable of going over difficult regions at rapid gaits, and even at need to take part in races set apart for hunters, we have determined to combat defects that are not of much consequence in easy country and at relatively moderate gaits, but that are fatal when it is desired that training be pushed further and a high jumper produced. If, for example, the horse has been put to obstacles before being perfectly tractable on the longe, and if, having reached this point in his training, he has got the habit of jumping askew and showing a pause, it will be a long and hard task to rid him of these faults; the instructor, who in spite of that would further push training his horse, will see its progress arrested at every instant.†

It is here then that the work is especially directed with a view to obstacles of width, if you would make a horse that is a perfect jumper. Three water jumps must be to hand: one of two meters, which should often be reverted to, to give the horse confidence, as we do with the bar on the ground, at the end of each session; one of three meters; one of four meters.

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*Concluded from September JOURNAL.

†We have seen many riders wishing to use our method without being thoroughly acquainted with it; the horses that they were training also appeared to take the high jump quite well, but were incapable of making a water jump of slight width.

These wet jumps or ditches will be dug in the center of a bit of ground so that they may be jumped on the longe to both hands. They will be about 0 m, 50 deep and filled with water if possible. Each will be fu nished with a movable brush screen, a sort of small hedge, which, withdrawn or advanced, increases or diminishes the width of the obstacle.

We insist upon jumping to both hands, in order to combat in the horse the disposition to jump askew, a tendency to which he would all the more readily yield as, for a width of moment, the instructor is often compelled to use the long whip.

We hall add that as training advances, tractability on the longe is more indispensable, and the task of instructor and sub-instructor more delicate.

One should be very exacting in the results obtained at the gallop before using the trot, admitting that the animal's strength will stand the work at this pace (which moreover would considerably develop his powers).

HOW TO GIVE THE LESSON.

The horse on the longe will be put over the two meter ditch after the same principles as for that of 1 m, 20.

The instructor will be careful to stand so as to allow the animal to go straight for several strides before the obstacle and also so as to be able to follow him up with the whip if necessary; these explanations have already been given, with plane diagrams to help. If the horse is tractable on the longe and the instructor knows how to take his stand, the animal should be able, if need be, to run about twenty meters at the gallop, straight for the obstacle. It is then understood how ordinary horses, finding themselves thus almost under the same conditions as when at large in the chute, succeed in jumping a wet ditch of at least five meters.

If the instructor is satisfied with the way the horse jumps the two-meter ditch, he puts him over a bar higher than those he has already jumped; then over a hurdle rather low at first, a new artificial obstacle always giving rise to fear.

Next he progressively draws back the movable screen from the ditch, widening it to about three meters.

Once put over these obstacles on the longe, the horse is mounted, and the lesson repeated, following the known principles, making the animal jump the same obstacle several times at gallop and trot, and in both directions if it be a ditch. He will even be made to jump sometimes at the walk, if he is powerful, being careful to let him hurry the last strides.

However, let us remind the instructor that the more the height is increased the more must the slow gaits be used; for the horse would contract the habit of taking off near the obstacle and would act likewise at the gallop. Now this defect is all the more serious the higher the obstacle and the faster the gait.

Next go out in the open, where the horse will be made to jump, first on the longe, then with a rider, obstacles proportioned to his progress in training.

After a number of sessions likewise indicated by the animal's progress, the preceding lesson will be repeated over the three-meter ditch, increased to about four meters, and over an increasing height, always having a care that the height does not prejudice the wide jump. Also go into the open.

During the course of these lessons, each session will be ended by again longeing the horse over the two-meter ditch.

It will be noticed that the three-meter water jump beginning to be a serious obstacle, the animal when ridden should leap it but a few times, under penalty of misusing his strength. It is then advantageous to dwell upon that of two meters.

Then, following the same procedure, the four and five-meter jumps will be negotiated.

If the horse manifests fear either by a pause, or by rushing, serious obstacles must be abandoned and return made to the two-meter ditch, which will not be left until the horse is perfectly quiet, and while following the progression, step by step, which should lead back to big obstacles.

If the horse stops and refuses at the high jump, or if he hurts himself in jumping, there must be no hesitation, in order for him to regain lost confidence, *to lower the obstacle and often even to lower it a great deal.* For there is great risk of disgusting him by bringing him back several times to the same obstacle, without being able to make him jump it. And on this subject the cavalry drill regulations very wisely say: "The trooper's ability consists much more in the art of anticipating resistance on the part of the horse than in power capable of mastering it, and the distinguishing mark of sound experience consists especially in aptitude for avoiding all occasions capable of provoking a struggle between the trooper and his mount."

## CHAPTER VIII.

### INSTRUCTION OF RIDER AND MANNER OF TAKING OBSTACLES.

It would be a serious mistake to believe that by clearing an obstacle from time to time the trooper can learn to jump properly. On the contrary, we think that, if in order to acquire this ability, it is not beneficial to jump great obstacles, it is at least necessary to jump many of small consequences.

Let us make a distinction between two kinds of obstacles; those that should be passed without jumping them and those that must be jumped.

We will begin by studying the first, that is those that should be passed over.

First of all, it is necessary to be imbued with this truth, that the horse constantly has need of free use of his head and neck, to avoid needless fatigue as well as falls. Thus, when at the walk the trooper supports his horse too much and prevents thereby the nodding movement of head and neck that helps the animal so much and is so natural for him when free, he handicaps his mount in the same way a pedestrian would be, if when taking a tramp his arms were so fastened that he could not move them. To climb a steep hill do we not incline the head and upper part of the body forward. Would the horse draw a heavy load going up if he were reined in and thus deprived of free use of his head and neck? Would not man often be subject to a fall, if, crossing rough ground, he had not the use of his arms? In varied and difficult ground, how would the horse pick places to cross and avoid falls, if he had not fully at his disposal the helm and balancing pole formed by his head and neck? *To support one's horse then*, is without in any way hindering him, *to keep only a light feel of his mouth*, so as to be ready, through this kind of in-

cessant supervision, to help him in case of error and not to deprive him by too violent a pull, given by too heavy a hand, of free use of his head and neck. To climb a steep slope it is again and always freedom of head and neck that is necessary: the trooper has nothing further to do than to carry forward the upper part of his body seizing with one hand the mane near the withers, while the other hand, if need be, guides by the reins; the horse then ascends with ease and without undue haste, if, however, the slope is not too stiff. On the other hand let the trooper pull on the reins and thus prevent his mount using his head and neck, and then the horse, when willingness overcomes instinct of self-preservation, rushes to climb the slope, without noticing the ground over which he goes, which occasions numerous falls.

To descend a stiff slope, it is equally indispensable to let the horse have free use of his head and neck. Furthermore, the trooper leans back seizing the cantle of the saddle with one hand so as not to slip and holding the reins in the other to guide if need be, but without pulling in order not to bring the horse on his haunches. Care must be taken in ascending or descending not to follow slopes obliquely, which might lead to accidents in case of a slip on the hillside.

In varied country, if he meet with quite a small obstacle, the horse steps over it when he has a free use of his head and neck; otherwise most often he leaps it through caution; for he well sees the obstacle, but is not able to value its importance nor to judge the exact spot where he should spring in order not to fall, while still keeping up the gait.

This information helps the trooper in going over varied ground, aids him in better passing over obstacles that it is unnecessary to clear and to better jump those that cannot be passed over.

Let us recall that jumping is performed by the horse by a true see-saw action, done with more or less ease according as head and neck are themselves more or less free in their play. If the rider prevent the horse using at will his head and neck, he would commit a more serious mistake perhaps than if he tied behind the back of a man about to jump or pulled from behind his arms that require to be thrown forward to help him raise his body. Before jumping, the horse draws back head and neck upon the trunk to help the rise of the forehand, but this withdrawal is preceded by a movement in extension of these same two members. A man who clears an obstacle, especially with heels together, does with his arms what the jumping horse does with his head and neck.

There is nothing simpler than these explanations: if the trooper grasp them not immediately, he has but to jump a good deal and he will quickly perceive their accuracy.

For jumping, the following precepts must be conformed to: before jumping, put the feet home in the stirrups, sit so as to give perfect freedom for the legs to urge the horse, if needed, and to steady him in moving forward; adjust the reins* so that the tension on all is equal, so that the bearing is not divided and consequently the mouth without mobility which would prevent it from gaining feel of the trooper's hand for ready execution of movements of head and neck. At the moment the horse springs, the trooper should be united with his motions by gripping with the legs without too much constraint and yielding the back, should keep his body constantly in a vertical direction (in other words perpendicular to the general surface of the

*See hold of reins.

ground) and let the right hand fall by the side* while allowing the left to obediently follow the different movements of head and neck. Once the jump made, the trooper retakes the hold of the reins he had beforehand.

If the trooper is riding with snaffle only, he crosses the reins in his left hand, which does not prevent his guiding with both hands up to the obstacle and then letting fall his hand by his side at the moment the horse springs.

The trooper, who through frequent drill has acquired sufficient tact act according to the rules expounded, is alone able to hold the reins in both hands during the whole performance of the jump. This hold of the reins, assuredly more correct, requires too much nicety for us to advise it in a general way.

We do not like the method consisting in gripping the horse forcibly and giving him both spurs at the moment he leaps, because by acting thus the animal is thwarted in his initiative, which is however in such a case a guide infinitely safer than the trooper's aids; because the spur is seldom applied exactly at the moment it would be of use; because the horse, accustomed to be ridden thus, is out of his reckoning if a rider acts otherwise; because spurring may make the horse too eager and hurl him into the obstacle. It is therefore seen that it is only at rare occasions and exceptionally that the spur may be used at the very moment the horse springs.

The trooper being thoroughly imbued with the general rules that govern the way to negotiate obstacles, a bar is put on the ground on one of the long sides of the riding-school and perpendicular to this long side. If a squad is being instructed, it forms in circle over already trained, pass over the bar quietly, the instructor takes them off the track and goes on with instruction of the troopers just as if the bar was not in the school. In training the trooper at obstacles the same steps must be followed as in training the horse, and as with the latter the highest importance attached to passing over the bar on the ground; it is left thus without being raised, as many days as necessary for the horses, without showing any pause, to step over it without jumping, proof that the troopers are able to pass over a small obstacle, without the hands interfering with the horse's mouth. Then, for a longer or shorter time, and while continuing instruction as though there were no obstacle in the school, the bar may be raised a little each day, until an average height is reached (ninety centimeters, for example, as laid down in the cavalry-drill regulations), having less jumping as the bar is raised, and being careful for some time to end the session by returning gradually to the bar on the ground. In general the reins will be held in the left hand, but it is a good thing for practice, sometimes to take them in the right hand and hen let the left fall by the side; invariably the trooper should guide his horse up to the obstacle with both hands until the moment of lapping.

As complementary to this work the bar, or, better, a second bar is placed in the cental part of the school, perpendicular or parallel to the long sides, for the troopers to jump when they meet it and thus accustom themselves to guide their horses well over an isolated obstacle; begin, in the usual way, by placing this second bar on the ground.

The means employed to learn the wide jump are the same as pre-

*At the beginning, it is well, as we have said, for the trooper to throw his hands backward in the air, as if he wished to give a backhanded thrust at someone behind him.

scribed for the high. The trooper's general instruction is continued without there being need of especial lessons. Later on, at the end of the exercise, the obstacles arranged on the drill-ground are jumped, at first by trooper, then by twos and by fours.

At last the troopers' instruction is ended by taking them on a cross-country ride to have them jump different obstacles taken note of previously.

Good results will be quicker arrived at, if daily during the vaulting exercises the troopers are made to jump riding a horse held on the longe.* Their arms will be allowed to swing; confidence will quickly come with the habit of letting ones self go with the horse's movements.

Moreover, in our opinion, this is the only case where a man should jump without the reins. By dropping them the trooper's apprehension is increased instead of giving him confidence, and the freedom the horse has while jumping is largely set off by the sudden jerk he gets from an inexperienced man when the latter retakes the reins once the obstacle is passed. Further, when a man after long drilling succeeds in keeping his seat while dropping the reins during the jump, he loses this seat when retaking the reins especially to jump using both hands. For the horse that, not being held, has gotten the good habit of thrusting out his head and neck, still instinctively seeks to do so when held; the trooper, not having received especial instruction intended to give him flexibility in his arms and sense of touch in his fingers, will often be torn from his saddle and will lose the benefit of long lessons passed in acquiring a good seat. On the contrary, the method we use for training horse as well as man, allows of reaching, *in shorter time, a better final result*, gives to the trooper very quickly and almost in spite of himself confidence, a seat and good hands, and has the advantage of leaving the horse free to such an extent that he is hardly more interfered with than if he was not held.

If the horse's taining has been well done, the trooper has no difficulty in guiding his horse up to the obstacle. But he may have to ride some imperfectly trained or obstinate horses. What is he then to do?

If the horse hesitates when he is being directed toward an obstacle his opposition must be forestalled by stimulating him with blows with the calf of the leg and even by strokes of the spur more or less frequent and more or less vigorous, according to the case. It is then that the advantages of a good seat will be felt, the indispensable requisite that the legs may act freely.

Too often the trooper's legs remain almost inert and then the horse st ops before the obstacle; the reason is that the man has not a sufficiently good seat to properly make use of his legs. Let them supplying be further dwelt upon, what the cavalry drill regulations call "Leg exercise" and that remedies these defects.

If the horse avoids in an oblique direction while trying to get the bit in his teeth, the trooper makes him resume the gait at which he is sure he can hold him, separates the reins, brings him back at this gait as near as possible to the obstacle and lets him jump or urges him, if it be necessary, so as to force him to leap. It is there that the effect of opening the reins must be used, again called direct effect, which too often is forgotten: whenever a trooper finds himself at variance with his mount he masters him without difficulty

*A horse well trained on the longe is chosen and only small obstacles are jumped.

and starts him again in the direction he wishes to go. if he uses this means and if he knows how to assist by the action of the leg on the same side. If the horse wishes to avoid to the left while moving, or if standing obstinately, refuses to turn to the right, the trooper has but to freely open the right rein and carry the haunches to the left with the right leg; the horse is then compelled to face to the right; then his head is straightened out so as to let him jump and he is urged with the legs. If, after having brought head and neck around to the right and before the desired direcsion has been completely taken, the trooper feels his horse renew his efforts to avoid he may, in order to compel him to kee his head and neck bent to the right, place the hand behind his right thigh; it is then impossible for the horse to displace his head by putting it again in the same direction as his body and he is not slow to yield.

When the horse seeks to avoid from as far off as he perceives the obstacle, it is easy to straighten him out if care is had to take the gait at which one is master. In such a case, it is necessary absolutely to master head and neck and on the other hand to avoid head and neck violently mastering the trooper's hands*, which enables the horse to go where he wilis. If the trooper, from the time he feels the horse tends to avoid, makes it felt by a light action of the hands that he is determined to be the master, the direction of the obstacle is most often retaken; but the horse that has not been mastered at the proper time, becoming all the stronger as his gait is increased, cannot always be straightened out, in spite of all efforts made to get a hold on his mouth. Moreover, the trooper, by vigorous pulling, will have more or less hurt the mouth, and we know that this part should not be injured if the jump is to be made under proper conditions.

Some horses avoid with such dexterity at the very instant they come up to the obstacle, that it is very hard to prevent them. In this case we advise holding the reins in both hands as much as possible and until the horse is felt to spring. But a trooper quite used to obstacles does not always succeed by himself in mastering these horses, that it is more discreet to again put to training.

If the horse swerves by a whirl about to the right, he is brought back to his original direction by a left about and he is brought back to the obstacle at the gait to which he may be surely held. If he resists at the about, he is held to it by opening the left rein and by closing the leg on the same side. Inverse means are used if the horse swerves by a whirl about to the left.

If the horse bolts and bores on the hand he must be brought to a gait at which he can be mastered and thus brought up to the obstacle, but not too close, so that he may not be hindered at the very moment of jumping.

If the horse stops short, a new start must be taken; try again to make him jump by vigorous urging at the moment the obstacle is to be negotiated. We prefer this method, formerly used, to that consisting at present in reining back the horse to obtain the start. For the horse generally stops short befor the obstacle because he fears the hands, and he will fear them all the more when they have been used to rein him back. In all cases, when it comes to horses

*The horse that violently takes possession of the rider's hand must not be confounded with the one that gently feels it and with the object of executing his jump following nature's own rules.

that want to stop in front of the obstacles, the legs must be used vigorously and ven, if it be necessary, the riding whip.

If the horse stops as far off as he perceives the obstacle and refuses to go on, or even wheels about, he is straigh ened out and effort is made to make him jump by using the recognized means. If he becomes confirmed in such a bad habit, it will be better to dismiss him and turn him over to a gentle and energetic trooper, who will be careful to again and very gradually put him through the series of exercises described in training th horse. This kind of balkine s is very hard to do away with, as it is the consquence of pain occasioned, either by the trooper's bad hands, or by too tender a mouth, by abuse of jumping, by defective conformation, or finally by blemishes. Indeed in the last case, if persistent attempt be made to make the horse jump, risk would be run of endering him unfit for any service by developing the blemishes that interfere with his action.

Our last advice is: that, if the trooper has bad hands and the horse a tender mouth, the obstacle must be gone at with speed. In fact, what must be avoided in jumping is hindering the horse. Now the trooper with bad hands checks the different movements of head and neck; the horse with a bad mouth is impeded in these same movements, since he may not gain feel with it of the man's hands in order to perform his jump. The necessity is, therefore, seen of putting the horse at the gait at which movements of head and neck are but little marked.

## CHAPTER IX.

### Some Causes that Prevent the Horse from Jumping.

The causes that prevent jumping come from horse or rider.

The causes coming from the horse are: bad sight, defective or injured hocks and tender feet. When these defects are very pronounced, even the experienced horseman annot give his horse all that is necessary to make a good jumper out of him. Let him then avoid jumping often and especially upon hard ground, so as not to cause pain consequent upon concussion of the joints and shocks harmful to the feet.

Again one of the reasons most often preventing a horse from jumping is an excessively sensitive mouth. This is more frequent than formerly, since for some years our stock, by crosses at times more or less happy with the blooded horse, has been transformed; consequently the mucous membranes on which bear the different instruments which serve to guide the horse are more sensitive and more easily irritated. Now a too sensitive mouth gets feel of the rider's hand with difficulty and prevents regular jumping. Therefore, the first requisite for a horse to become a good jumper is to have a good mouth, that is a mouth not only not avoiding contact with the bit, but further that should be capable of getting feel of the rider's hand in such way that head and neck have all the necessary freedom. So the hack whose mouth has been rendered too fine makes a good jumper with difficulty.

The principal reasons that prevent the horse jumping and that come from the man are: bad hands and timidity.

We have said enough about the handicap of bad hands in executing the jump to make it useless still to dwell thereon.

By timidity we mean fear, lack of confidence. When the rider is afraid, has not even decided to jump, is not sure of himself, is per-

suaded in advance that his horse will not jump, otherwise stated has no desire to jump, his horse is immediately warned of it by a sort of nervous action arising probably in the hands and transmitted by the reins to the mouth. This fact we have many a time noted without being able to explain it otherwise. The horse understanding well then with whom he has to deal turns back or stops before the obstacle. On the other hand, when the rider is courageous, determined to jump has no feeling of danger, is sure the horse will not be able to resist him, he will safely clear the obstacle, even though he ride a horse little disposed to jump. Who has not seen drunken men make their horses perform, through bluster or otherwise, improbable jumps that they would never have dared demand if they had been in their sober senses? A shortsighted person sometimes gets over incredible obstacles that he has not been able to see.

Some timid riders, feeling their insufficiency, seek to divert their minds by actions in part feverish, wriggling about in the saddle, belaboring the horse at random, hanging fast to his mouth. At to the latter, Baron d'Etreillis said to us quite correctly: "When you see a man come up to an obstacle like a madman, be sure he is dying of fright. Like Gribouille he jumps in the water for fear he drown. They are a class of poltroons quite worthy of respect, as they take it upon themselves to face a danger that vividly impresses them; but, from the horse's point of view true cowards, those who flee danger, are perhaps to be preferred; at least they could not spoil the horse."

## CHAPTER X.

### Horse too Eager at the Obstable: Causes and Remedies.

A horse rushes upon an obstacle, when suffering, of no matter what kind, prevents his jumping quietly. If he has weak loins or hocks, for example, he feels that the more dash he puts in it the the muscular effort he will have to make and consequently will have less fatigue to support. But, let us hasten to say, suffering that is always attributed to loins or hock has often its seat in the mouth.

Many a time we have seen horses jump at slackened gaits (walk or trot) who had bad loins or defective hocks; rarely have we been able to hold down to this, those with too tender a mouth. In general the horse is too eager at obstacles, when he is deprived of free play of head and neck, either because the mouth is at fault through excessive tenderness, or the hands are not light enough. It is not then through love of jumping, as is often thought, that the horse rushes at obstacles.

Moreover, about the same may be said of every horse termed too eager. Let a horse ridden or harnessed mince his trot instead of going at a free gait, gallop instead of trot, I have reason to think that this animal is eager, not becaus hi hocks or loins hurt him as is the fashion to say, but because his mouth hurts. It in fact is restless, now shaken and ceaselessly in movement as if it refused to take hold of he bit, now drawn up so as to escape all action of the hands. Let a horse bore; he is said to be hard-mouthed, when most often his mouth is too tender. He contracts it so as to feel a heavy hand as little as possible and it is only when tired out by this contraction that suddenly he opens his mouth as though to avoid the bit's action. Such a horse is perforce all the harder to manage, and trots the more irregularly as he is more severely bitted; the very thing, however, most often done without fail.

We must not, however, confound the horse that bores because his mouth is too tender with the one that bores because his is not sensitive enough, or rather because the parts on which the bit rests are thick and the neck heavy. The first pulls in order to shield himself, the second because he does not feel the action of the bit; this last defect is easier to correct than the other.

Heaviness of hand is often in itself alone the cause that makes a horse with good loins and hocks uffer; the weight of head and neck thrown backward overwhelms the hindquarters, that can no longer freely give impulsion.

In order to know whether the defects I have just spoken of came in fact from excessive tenderness of mouth, I put a cavesson on some horses having these troubles, to each side of which I had attached a rein. After practice I guided them with these reins, without using snaffle or curb, and almost always proved that soon necks were stretched out, jaws no longer moved convulsively and naturally gaits become regularly and free. The horses no longer sought to get out of hand in a word they had regained freedom of their head and neck they no longer contended, they were no longer too eager.

Many a time I have seen teams refuse to start, stamp, then dash ahead with violent bounds. They never failed to say that the horse was lame in the shoulder. I replaced the bit in use by a plain snaffle with large mouthpiece and generally I at once obtained willingness to move forward.

My object is not, of course, to announce as a principle that a tender mouth is the sole cause of the faults I have just mentioned. But I do think that excessive tenderness is a defect more common to-day than formerly; riders' hands have not become better, while horses' mouths have become more delicate following blood introduced in very great quantities in all our breeds.

This too long digression was not without use in making the rider understand that if he has bad hands, it is he himself that is the cause of his horse's fault of being too eager. But if the rider has good hands while the horse's mouth is exceedingly tender, this last trouble does not always disappear and may only be palliated.

As to the course to be pursued to quiet the horse that has gained the bad habit of bolting over obstacles, we will point it out in relating what method was employed in 1887 with *Padley*, the well-known hunter. This animal, that formerly I had had in my hands with an excellent mouth, and that his new owner lent to everybody with too great readiness, had become so eager, so sensitive, that he could not be prevented from rushing at obstacles, although all kinds of bits were tried. The horse was, however, sent to the Nantes horse show, but made there the sorriest exhibition, falling, and twice jumping into the grand stand. Afterward his owner forwarded him to me for the Paris meet and wrote: "The horse is greatly changed; the Pau hunts have made him almost crazy over obstacles. It would be best, perhaps, to put him at a canter without making him jump, for fear of making him completely wild." Unfortunately, the horse arrived with a very bad hroat that prevented my exercising him as I should have liked. But I subsequently noticed that he feared the rider's hands to the point that he not only did not seek to gain feel of them, but even turned his head around to the rear for fear of meeting them. I took the horse to the riding-school to work him on the longe and again found him tractable, just as I had left him some years before: he passes over the bar on the ground several times without jumping

it, then at o m. 60 about, then once more on he ground at a walk; he did not sweat, thanks to his tractability on the longe; it was of consequenc · as he still was coughing. After two hours' rest in the stable, the horse was put through the same exercise, but the bar was raised h gher; once calmness obtained, which was quickly effected, I removed the cavesson and rode him with a plain pelham. I pass several times over the bar on the ground using great patience in order to get him to step over the bar without jumping it, for he dares not conclude to feel my hands so as to be able to make the jump regularly. Finally, having obtained the result that I sought, I make him pass to the trot and gallop; then the bar is raised to about o m. 40 and I have it jumped at the three gaits. I end with the exercise at the walk over the bar on the ground.

Each of the preceding two lessions had lasted twenty-five minutes and I had acted so as to avoid sweating.

The next day I again exercise, the horse on the longe without riding him, making him clear several times a three-meter water jump, allowing him to take the gallop only during the half circle just before the obstacle and requiring that after the jump the horse take the walk and go freely and even with indifference on the circle. I next go into the riding-school, where, following the procedure indicated, after having begun by passing over the bar on the ground, I succeed in jumping six times and without quitting the gallop a height of one meter, my horse no longer seeking to pull either before or after the obstacle. I end the lesson with the work over the bar on the ground at the walk, and I send the horse back to the stable After about two hours' rest, I have him brought back; for some ten minutes I longe him; then I mount him and make him jump several 1 m, 20-hurdles. The lessons for the second day's work were ended. While I was riding him I made every effort to compel him to gain feel of my hands. With this object, I had walked him around in the riding-school while making him describe figures, weaving in and out, that forced him to bend his head to the right and left and to come in contact with my hands.

The third day I follow the same procedure as before for my horse; he jumps on the longe and several times the bar raised to 1 m, 30 and the water jump. I was careful to put him at the walk for some meters each time he had made an effort requiring an increased gait. I ride the horse and leap the water jump twice; then I enter the riding-school, where for about half an hour I exercise my horse, making him jump the bar when I encounter it upon my path in the different movements. Finally I jump twelve 1 m, 20-hurdles, without leaving the gallop. The horse is perfectly calm; nevertheless he was slightly heated and as he still coughed I dismissed him.

In the afternoon I go to the horse show to see another of my horses jump and I learn that the man charged with entering this horse had made a mistake and given in the name of *Padley*. I had not the slightest intention of having the latter compete, but meeting a friend in whom I had confidence, I proposed riding the horse to him, assuring him that he would master him What I said happened; I had a two-fold satisfaction; to have afforded pleasure to a friend who never was better carried over obstacles by a sounder horse, and to see my horse classed first. The successes of *Padley* did not stop there: he competed yet three times, won two trials : nd was only beaten once by a horse of mine ridden by the same friend.

### CHAPTER XI.

### HORSE TOO SLUGGISH AT OBSTACLES: CAUSES AND REMEDIES.

The horse, without being too eager, should always go cheerfully at obstacles under penalty of losing dash and often of showing the pause that we have condemned.

If he is too sluggish, he does not exact on the rider's part as much tact as the eager horse, but requires to be quite vigorously handled, especially over the wide jump. Well ridden, he readily judges what he must do, and particularly when it comes to height he jumps safely.

The causes making a horse too sluggish arise from disposition, from a lymphatic temperament or from the fact that the animal has hunted in regions where he has had to jump much at the walk. In the latter case he surely is well built and has a good mouth; the defect, moreover, is easy to overcome.

If the horse is too sluggish on account of his disposition or lymphatic temperament, it is not completely remediable. We advise having small obstacles jumped a great deal and dwelling upon the wide jump, while vigorously urging the animal at the moment of jumping.

### CHAPTER XII.

### USE OF THE RIDING-WHIP.

The riding-whip is an aid that should seldom be used.

When I see a horseman make use of it in jumping, I generally conclude that he is not squarely seated in his saddle and that, not having a good seat, he holds on only with his knees and by supporting himself on the stirrups, which paralyzes the action of the legs.

One of the great inconveniences of using the whip instead of the legs is that the animal, that has need of urging, is precisely the one that must be held with both hands up to the instant he springs. As he can not thus be guided while making use of the whip the animal feels that he is not held and profits thereby to avoid.

The riders that use the whip apply it to the horse's flank at the instant of jumping, which often hurls the animal into the obstacle and accustoms him to both. Moreover, they employ it without examining its use, not so much to animate their horses as for better seating themselves by the very fact of the backward motion of the arm, the hand having quit the head so as to use the whip.

This cut of the whip we have often noted, is almost instinctive with an inexperienced man. But it would be preferable to let the hand fall to the rear along the side and avoid giving it, seeing that it generally does harm

However, the rider should use the whip with horses that refuse to obey the legs.

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## MILITARY REFORMS; THE SUPPRESSION OF DRUMS.*

TRANSLATED FROM *Nuevo Mundo*, MADRID,
BY LIEUTENANT W. E. MOULD, EIGHTEENTH INFANTRY.

A MILITARY writer has recently computed the number of drums in our army, and believes it to be so excessive that he recommends doing away with them, at once and finally; there exist at present a little over 2000, and with this number of drums, or, to be more exact, of drummers, he believes that we could form two battalions or two regiments (I forget which) of which, in his opinion, we stand in much need to complete our military organization.

I do not, naturally, understand much about these things, nor whether by restraining these drums our army would lose an effective force, when their cost would form for us the two regiments required; but I presume that their suppression would be a good thing, as such has just been decreed in France, and I am sufficiently convinced that from that country we form all our opinions as to whether or not any change is desirable.

It is then evident that drums must be sacrificed here, as they have been in France, and the only extraordinary thing is that the idea of suppressing them occurs to us so inopportunely, when the military drummers have yet to break their first drumhead since we established their noisy institution, without which we Spaniards might have lived, or believed we had lived, a long time completely happy.

The reason that this case is a rare one is that we for once anticipated the French by doing without the drums, for a long time keeping step to the bugles beautifully, until a short time ago, five or six years at the most, our technical officers fell into the idea that without drums we could never become a military power of the first order; and although we could not give to our artillery the rapid-fire guns asked for by illustrious soldiers, as a necessity, still the infantry was given these noise-makers which every savage believes to be indispensable in creating panics in the ranks of his enemies.

What is it that has passed during the last five or six years to make these indispensable drums, according to the very technical officers who decreed their indispensability, now a costly burden, perfectly useless and an obstacle to the necessary crowning and finishing of our military organization?

Undoubtedly this must be one of the lessons in military art deduced from the Russian-Japanese War, and if Spanish technical officers continue to make use of the lessons taught by the foreign military, this will not be the only nor the last idea that we will see taken advantage of here. Not much time will pass before they will change the position of a button, or augment the thickness of a trench one or two milimeters, thus placing us two milimeters nearer invincibility.

We must not lament the fact that our technical officers are limited to these minute and purely entertaining labors. Judging by the lack of firmness in their judgments and the great versatility of

*After reading the interesting remarks on "Field-Music" in Captain Ryan's "Observations in Europe," published in the last JOURNAL of the MILITARY SERVICE INSTITUTION, the writer believes that the accompanying translation of an article giving the views of a Spanish writer will be of interest to readers of the JOURNAL.

their opinions, the best that could happen would be for them not to consider deeper things.

Our salvation, then, is in that these trifles exist, and in that the technical officers, by employing their time in deciding, for example, whether the infantryman shall wear emblems or numbers on the collar of his coat, cannot pass to more substantial problems. Wrapped in that of the drums, interesting or at least noisy as it is,they will be sure to resolve it by sentiment and not, as they should, by reflection.

Reasoning normally, this reform, which to prosper would destroy drums and drummers, would not be so very worthless in effect. In common with the suppression or the conservation of military music, it would involve arduous psychological problems of immediate application to the art of war, and very intimately related also to the animal mechanism which is one of the first factors in the art of making war.

In military history there is much interesting data from which to make a study of psychology, and on entering upon it and establishing the necessary relations, one comes to the conclusion that (unless the man is absolutely and completely reasonable, without a trace of the lower animal nature) the drums and music in general can also be, and have often been, important elements in combat.

The exploits of drummers of the Napoleonic epoch alone would furnish material for a voluminous argument directly contrary to the suppression of drums, and a very robust branch of French military literature contains no other subject than the heroism of drummer-boys.

Without appealing to the study of history, but proceeding in a modern manner and giving attention to the experimental method, it is easy to encounter arguments in favor of continuing the drums and even of extending military music. Measuring the work realized and the fatigue produced by similar marches, with and without music, very useful lessons may be deduced contrary to the proposed reform, as experience demonstrates that music and drums have, on the human machine, an effect like that of oil on other varieties of machines.

The historical and the experimental methods, then, seem to be in accord on this point, and to effect the permanent suppression of drums it will be necessary to remedy the essential deficiencies of the past and present, in the manner of making war; to show definitely that personal valor and the resulting valor of masses which music engenders and preserves, are no longer factors in battle; and that battles themselves are nothing but mechanical problems, perfectly solved on a table.

And this is the idea; but much as we have approximated to it, we are still sufficiently distant, and this reform which we now copy from the French turns out to be at least a little premature.

It may be, naturally, that as time goes on this reform will come to be necessary; that is, unless human beings shall have become convinced, prior to this, of the uselessness of war and have done away with armies altogether; a proceeding which would naturally render completely useless the suppression of the drum.

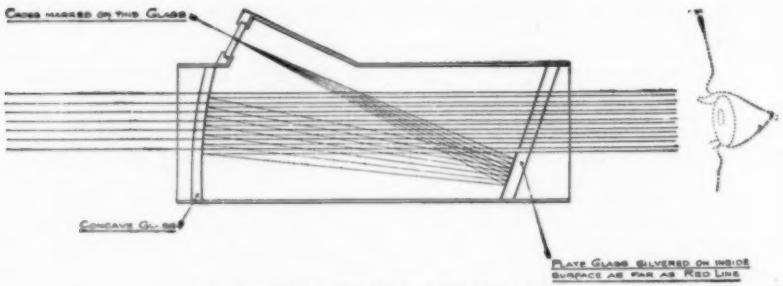


FIG. 6.—OPTICAL PRINCIPLE OF THE GRUBB SIGHT.

## THE GRUBB GUN-SIGHT.

A COLLIMATING telescopic gun-sight has been invented by Sir Howard Grubb, which departs so radically from the usual type of sight, that a brief description of its salient features may not be without interest.

As shown in Fig. 6 of the accompanying illustrations, the sight consists of a short metallic tube, the rear end of which is closed by a window of parallel plate glass, the lower portion of which is silvered on the inside, while the upper portion is left perfectly transparent. The front end of the tube is closed by a curved glass, the concave surface of which is coated with a chemically-deposited film, which is both semi-transparent and highly reflective. The curved glass, therefore, acts as a transmitter and a reflector of light. The tube is formed at the top into a hood containing a glass diaphragm, covered with an opaque coating, on which is cut a cross.

The manner in which this optical system works is well shown in Fig. 6. The rays emanating from the target are transmitted both through the front and back windows without refraction, and enter the eye exactly as if there were no sight at all. On the other hand, the rays which enter the eye to form the image of the cross diverge, and are reflected from the silvered portion of the back window on to the concave surface of the front window which, being coated with a reflective film, diverts the rays in question through the transparent upper part of the back window, and thus to the observer's eye. Bacause of the peculiar curvature of the front window, the rays of the cross are parallelized after reflection, so that they enter the eye as if they had emanated from a large cross on the distant object itself. The cross is, therefore, optically superimposed on the target.

Since the observer's eye is absolutely fixed, there is no necessity for a back sight, which is a very important advantage in itself if the weapon is to be handled in a strained position.

That the virtual or ghost image of the cross is really formed at or near the plane of the object aimed at, is proved by a small photograph in the lower right hand corner of Fig. 1. The photograph was obtained by placing the camera a few feet behind the sight, focusing on the framework of the sight, and exposing the plate. As shown in the picture, the sight body itself is quite indistinct, but the distant views of the dome and the cross are both quite clear,

FIG 2.—THE GRUBB SIGHT APPLIED TO A SIX-POUNDER.

proving that this ghost image of the cross is practically in the plane of the distant dome. In looking through the sight, the object aimed at is seen as distinctly as with any open sight, except for the very slight loss of light occasioned by the semi-transparent film.

Much of the difficulty experienced by novices depends upon the impossibility of seeing the ordinary foresight of the rifle simultaneously with the target. In the case of the instrument we have just described, the foresight can be completely discarded.

Although thi sight is not a telescopic sight in the true sense of the word, it can be made to magnify, if desired, and that without some

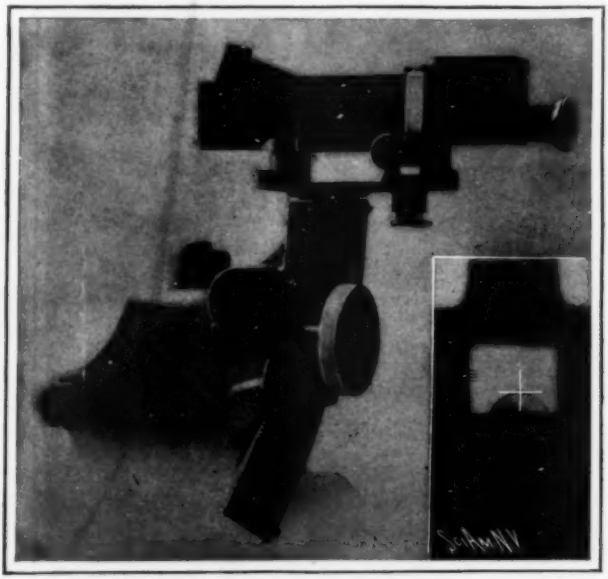

Photo. taken through a sight.

FIG. 1.—THE SIGHT ON A SIX-POUNDER MOUNTING.

of the disadvantages of ordinary magnification. Just as it is possible to focus both object and cross on a photographic plate, so also is it possible to focus both in a field glass and a telescope. The larger patterns of the sight (used for field and naval guns and guns of position) are all supplied with attachments for monoculars and binoculars. The telescope, however, in this case is used simply as a means of magnification of both object and cross, and any error of adjustment of looseness in the lenses in no way affects the accuracy of the sighting, because it affects both the object and the cross equally. In this respect it has an advantage over the ordinary telescope sight, in which accuracy and constancy of adjustment are most essential.

In the accompanying illustrations, Figs. 1 and 2 show the Grubb

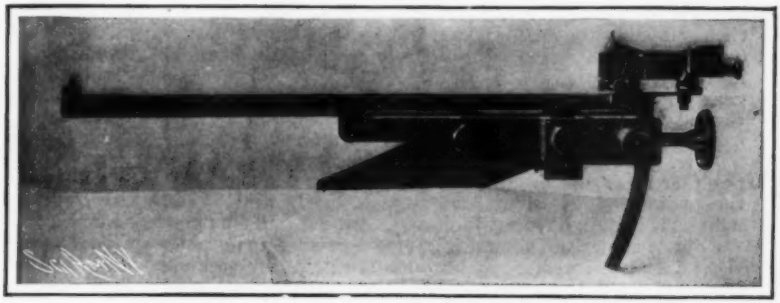

FIG. 3.—THE SIGHT APPLIED TO A TWELVE-POUNDER RAPID-FIRE MOUNTING.

FIG. 4.—THE GRUBB SIGHT APPLIED TO A BRITISH SERVICE WEAPON.

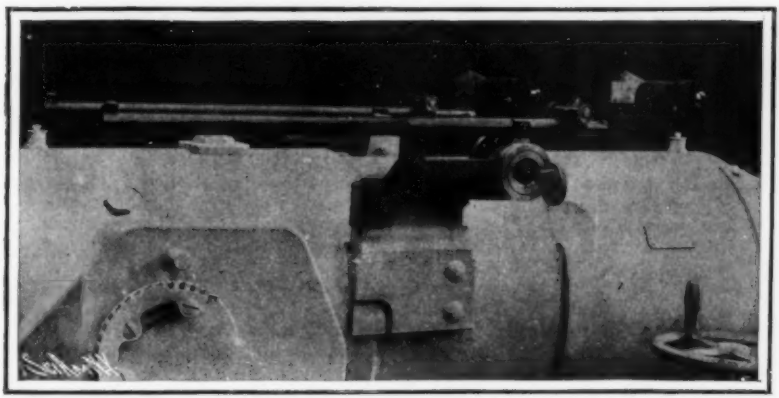

FIG. 5.—GRUBB SIGHT ON A SIX-INCH RAPID-FIRE GUN.

sight adapted for use with a six pounder naval mounting. The bracket for the sight is constructed so as to fit on the mounting after the removal of the ordinary tangent sight. The appliance is mounted on the top of a radial rack, securely held by and capable of sliding in a socket formed in the sight bracket. A worm wheel and pinion gear serve to elevate the sight rack. Deflection of the sight is arranged for, and consists in training the sight around a center by milled head and screwed in the usual manner.

Fig. 3 shows the instrument applied to a bar sight for a twelve-pounder rapid-fire mounting. In this case the sight is carried above the ordinary back sight, and may be easily and quickly removed, held as it is by a bayonet joint arrangement and a small spring catch.

Fig. 4 shows the sight fitted to a British 0.303 service rifle. The sight does not interfere at all with the ordinary sights, because it is mounted to slide on the face of an arc on the left-hand side of the rifle. The top of this arch is notched, and the notches are cut to correspond with given ranges engraved on the arc. A spring catch holds the sight at any of the notches, adjustment of range being affected by sliding the sight along the arc.

In Fig. 5 the Grubb sight is shown fitted in conjunction with a bar sight of a six-inch rapid-fire mounting, the Grubb sight being carried on an extension of the ordinary sight bar so that it is to the rear and slightly above the ordinary backsight.

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## THE LOYALTY OF WEST POINT.

*The New York Evening Mail.*

HEADQUARTERS ATLANTIC DIVISION,
Inspector General's Office,
Governor's Island, N. Y. October 4, 1905.

Editor, *The Evening Mail.*

SIR:—In your Illustrated Saturday Magazine of September 30, 1905, an editorial headed "A University of the Seas," uses the following language:

"It is a noteworthy fact that in the Civil War the West Pointers in the army who were from the Southern States went with their States almost to a man, and became the commanders of the Confederate Army, while the exactly opposite fact was true of the navy; nearly every Southern man in it remained loyal to the flag. One of them, Farragut, a native of North Carolina, became the most famous of the sea fighters for the Union."

It is, to say the least, unfortunate that the opening article of your edition devoted to the United States Naval Academy should contain statements, cited as "noteworthy facts," that are so far removed from the truth as are most of those contained in the quotation given above.

The slur at the loyalty of the graduates of the Military Academy, and the resultant glorification of the loyalty of the navy officers at the period of the outbreak of the Civil War, will not stand the test of investigation. Taking the quotation as a whole, but two of its statements are correct, viz.: That the West Pointers who went South became the commanders of the Confederate Army, and that Farragut became the most famous of the sea fighters for the Union.

As regards Farragut, you are in error in stating he was a native

of North Carolina. David Glasgow Farragut was born July 5,1801, at Campbell's Station, near Knoxville, Tennessee. This is perhaps a minor error, though I doubt if the State of Tennessee will be willing to lose the identity of her son.

It is, however, to your statement that "the West Pointers in the army who were from the Southern States went with their States almost to a man, while the exactly opposite fact was true of the navy; nearly every Southern man in it remained loyal to the flag." that the very serious objection rests.

The facts in the case are as follows: On December 1, 1860, there were 1108 officers holding commissions in the United States Army. After November 1, 1860, 286 officers of the army resigned or were dismissed, and afterward joined the Confederate Army. Of these 286 officers, 187 were graduates of the Military Academy; sixteen of these graduates were from Northern States, thus leaving 171 army officers, graduates of the Military Academy, appointed from Southern States who left the service to join the Confederate Army.

One hundred and sixty-two (162) graduates of the Military Academy from Southern States in the service at the outbreak of the Civil War remained loyal to the flag, and served in the Union Army. Among these graduates of the Military Academy who were from Southern States, and who remained loyal, were George H. Thomas, of Virginia, major-general, United States Army; S. V. Benét, of Florida, afterward for many years Chief of Ordnance, United States Army; Alvin C. Gillam, of Tennessee, major-general, United States Volunteers; William P. Craighill, of Virginia, afterward Chief of Engineers, United States Army; Robert Williams, of Virginia, afterward adjutant-general, United State Army; William P. Terrill, of Virginia, brigadier-general of volunteers at twenty-nine years of age, and killed at the Battle of Perryville; Junius B. Wheeler, of North Carolina, afterward Professor of Engineering at the Military Academy; Benjamin F. Davis, of Mississippi, who as colonel of the Eighth New York Volunteer Cavalry was killed at the Battle of Beverly Ford; John C. Tidball, of Virginia, colonel of the Fourth New York Volunteer Artillery; William H. Lewis, of Alabama, killed by Indians in 1878; John Newton, of Virginia, afterward Chief of Engineers, United States Army.

The truth is, that instead of the West Pointers in the army who were from Southern States going with their States almost to a man, as you state, almost one-half of them remained loyal, and fought in the Union Army, the proportion being 171, who went south and 162 who remained loyal.

I am unable to ascertain the exact number of officers of the navy on December 1, 1860. It does not appear in Maclay's History of the navy, nor any other book of reference at hand. Within a few days of the attack on Fort Sumter, of the seventy-eight captains on the active list of the navy, twelve resigned or were dismissed; of the 114 commanders, thirty-nine resigned or were dismissed; of the 321 lieutenants seventy-three resigned or were dismissed; 259 officers of the navy resigned their commissions or were dismissed after the 4th of March, 1861. In all, 322 officers of the navy resigned or were dismissed and went south—actually and relatively a larger number than the West Pointers who left the army and went south.

You are not more happy in your remark that the West Pointers became the commanders of the Confederate Armies, and the infer-

ence to be drawn when you state the exactly opposite fact is true of the navy, adding, "One of these, Farragut, became the most famous sea fighter for the Union."

All honor to the brave Old Salt! But great as were his services on water, they were not of more value to the Union than those of George H. Thomas, of Virginia, graduate of the Military Academy, major Second United States Cavalry, at the beginning of the Civil War, on land.

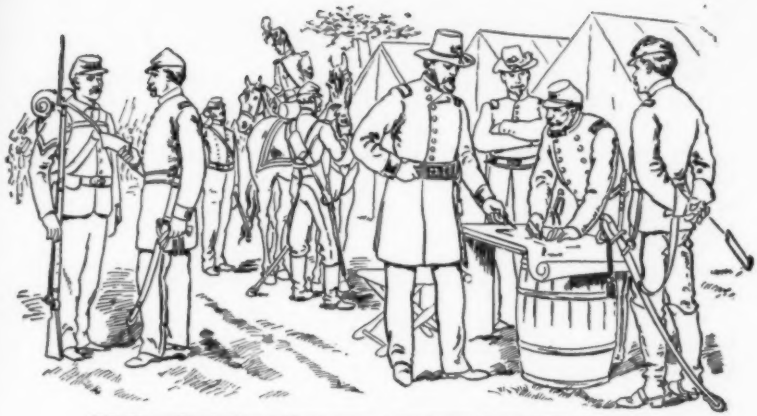
In the Confederate Navy, as in its army, the leaders and commanders were from the old service. Buchanan, who under George Bancroft, Secretary of the Navy, organized the Naval Academy in 1845; Tattnall, of "Blood is thicker than water" fame; Catesby A. R. Jones, John M. Brooks, S. D. Bullock, J. K. Mitchell, Hunter Davidson, Semmes and Kell of the *Alabama;* and James D. Johnson of the *Tennessee;* these men were undeniably the leaders and commanders of the Confederate Navy, and they came from the old navy.

The loyalty, devotion to duty and prowess of our naval officers at all periods of our country's history are matters of pride to all our people, and we of the army are second to none in our appreciation of the United States Navy. To set forth its value, however, it is not necessary to decry another service, nor to falsify the facts of history, and the United States Naval officer would be the last to justify such action.

In view of the wide-spread circulation of your magazine of September 30th, and the credence placed by your readers on any statement they see in your editorials, the injustice done by such statements as are quoted above is very far reaching. In justice to those graduates of the Military Academy, who appointed from Southern States remained loyal to the Union, sacrificing in many cases all family ties to do their duty to their country, will you not correct the entirely erroneous statements contained in the quotation from your editorial given above?

The figures used above are to be found in Cullum's "Biographical Register of the Officers and Graduates of the United States Military Academy"; "The Blockade and the Cruisers," by J. R. Soley, Professor United States Navy; "The Atlantic Coast," by Daniel Ammen, rear admiral, United States Navy; "Life of Admiral Farragut," in the Great Commander Series; and "The Historical Register and Directory of the Army," Heitman.

Very respectfully,
(signed) S. C. MILLS,
*Colonel, Inspector-General,*
Class of 1877, U. S. M. A.



# Comment and Criticism.

## "The United States Magazine Rifle, Model 1903."

Captain Theo. H. Low, U. S. M. C.

It seems a singular coincidence that the recent modifications of the service type of rifles in both Great Britain and America have called forth such criticisms as to necessitate numerous replies. Various have been the comparisons that have been made, for while Lieutenant Mumma is content to merely show the superiority of the new Springfield over the "Krag" carbine, Major Brown in his valuable article tabulates its advantages over the present rifle. Others even go so far as to suggest that the real question is whether the new type is the best possible, and equal to any that could be evolved by free public competition. Indeed, in England it has become necessary to explain that motives of economy restricted the changes to modifications of the old type.

Many points as shown by Lieutenant Mumma still remain doubtful, some of which might be settled by exhaustive tests which might well be opened to all the classes of shots that would make up our firing line. For even though not most favored by the experts, the rifle that under service conditions proves to be the most effective in the hands of novices might have much in its favor for the troops, and especially of recruits, after a number of days daily firing 400 rounds. In this respect, the Lee Enfield short rifle has the advantage, with no greater energy of recoil than the Krag, in spite of its being the lightest of service rifles, only weighing a couple of ounces over eight pounds.

It seems, indeed, still a question of how much the loss of accuracy and velocity due to cutting off the six inches of barrel will be com-

pensated by the resulting greater handiness and saving of half pound in weight. Probably, however, the limit of the practice of shortening barrels is reached as has the reduction in caliber.

But skepticism as to all claimed for the new Springfield can be excused on the part of one who has never seen it. Perhaps much criticism must be expected until an ideal automatic rifle be placed in the hands of ideal troops.

**Captain Herbert Barry, Squadron A., N. G. N. Y.**

Members of the National Guard have little or no opportunity to inspect or experiment with the new United States magazine rifle, model of 1903, and generally speaking, their knowledge is derived solely from such accounts of it as they may have read.

The more perfect the arm supplied to the National Guard the greater is the interest that can be developed in rifle shooting, and the better the results that may be attained. Fifteen years ago the arm with which the National Guard was chiefly supplied was the old Remington, which by combining lack of precision with enormous recoil, effectually dampened enthusiasm for target-practice.

The issuance of the Springfield rifle and carbine gave a stimulus to target-practice in the National Guard, which has been greatly increased by the subsequent substitution of the Krag, and within the writer's personal observation quite remarkable advances have been made, both by individuals and by organizations. In the organization with which the writer is most familiar, Squadron A, having a total membership of about 250, the following is a list of the number of sharpshooters qualified each year since 1895; 1895, 21; 1896, 29; 1897, 39; 1898, 29; 1899, 43; 1900, 32; 1901, 40; 1902, 55; 1903, 107; 1904, 107. The large increase of the last two years reflects the interest aroused by the issuance of the Krag carbines.

From the standpoint of the cavalrymen of the National Guard, the introduction of the 1903 model rifle will be greatly welcome. The Krag carbine, although an excellent arm, is not on a footing of equality with the Krag rifle. The points of difference are noted in the article of Lieutenant Mumma and the practical effect of these differences is well known to those familiar with both arms. The number of infantry organizations in the guard is large, but there are few of cavalry; the difference in the two arms renders it impracticable for the cavalry and infantry to enter competitions upon an equal footing, and while numerous teams may be readily secured for infantry competitions, the number of teams armed with the carbine being small, there is correspondingly less interest in such events. Another practical disadvantage of the cavalrymen is that the study and tabulation of the trajectories and of the effect of light, wind, etc., are made and compiled as to the rifle, and the results are not available for the

carbine. With a uniform arm for both branches of the service, the cavalrymen would also enjoy the benefit of such investigation and experiments.

In connection with these desultory remarks, it may not be amiss to mention that while the Springfield rifle and carbine, using a soft lead bullet, lasted for an indefinite time, the present arm, using a steel jacketed bullet, suffers more from the friction of the bullet, and as the lands become worn down, the arm loses very greatly in precision and reliability. The same trouble will undoubtedly be experienced with the new rifle. This deterioration has been so common an experience that at a meeting of the National Rifle Association at Sea Girt during the present season, it became the subject of discussion and the following well-expressed statement of the difficulty was made by Dr. W. G. Hudson:

It is safe to say that every observant rifleman has become aware of two serious difficulties which confront the military shooter of to-day: (a) The obtaining of a good shooting barrel on his Krag, and (b) the rapid wearing out of the barrel after it is obtained, especially if much skirmish or rapid-fire shooting is practiced.

The modern rifleman has acquired a knowledge of how to select a gun which promises good work; therefore, the rifles to-day in the hands of the team men and good shots of a military organization are those selected as the best of the entire allotment of guns to such organization, and this partly explains the remarkable scores which have been so common of late years. Experience shows that only about one out of twenty barrels of service issue conforms sufficiently close to the standard to do the fine work required to win matches nowadays, not to say that the remaining nineteen are unserviceable from a military standpoint, but they will not do the fine work, especially at the long ranges, necessary to win against rifles selected by experts.

This leads to two questions: (1) What are we going to do when these barrels of correct measurement are worn out; and (2) should not some means be placed at the command of even an inferior shot, to whom one of the poorer barrels may have been issued, to obtain a barrel of sufficient accuracy to keep up his interest in the sport? Such a man may eventually become a good shot, but he will never do so, and will speedily lose all interest if his rifle is incapable of fine work when properly pointed. A rifle must be accurate to make shooting a pleasure.

The remedy for this state of affairs is to admit barrels of private make, when guaranteed by an officially appointed, viewer to be in all respects like the standard Government barrel, to all matches on the same footing as the Government made weapon.

This is done in England with satisfaction to all, and it is believed that the same plan would work advantageously in this country also. But the chief reason for urging it at this time is to remove the objection which so many riflemen have to doing much skirmish and rapid-fire practice, through fear of wearing out their barrels; one dislikes to wear out a good barrel when there is small prospect of replacing it. I believe that most riflemen have found their barrels worn out for fine work after less than 1000 rounds have been fired, if much of the

firing has been skirmish and rapid fire-work, and sometimes a barrel will go bad after a few hundred shots.

There seemed to be no dissent from these views, and the meeting adopted the following resolution, which it is hoped may lead to favorable action·

1. That the Executive Committee of the National Rifle Association confer with the National Board for the promotion of rifle practice, with a view to so modifying the conditions of the national matches that barrels of private manufacture may be admitted thereto on the same footing as Government made rifles throughout, providing (a) that such barrels conform in outside and inside measurements, weight, character of rifling, pitch of rifling, number of grooves, and in all other respects, to the standard adopted by the Government; and (b) that such barrels bear the inspection mark of an official appointed in such a manner as said board may deem most expedient, to be known as "View Mark A" or "Government Viewers' Mark," as a guarantee of inspection and conformance to the above requirements.

2. That the present view mark of the National Rifle Association be designated as "View Mark B," and applied as at present to rifles coming under the designation, any military, and also to special barrels which may have been fitted to Government made actions, whose outside dimensions and chambering are the same as the Government barrel and which are capable of using the standard ammunition, but whose rifling may be modified with a view to demonstrating in the annual competition whether the standard form of rifling can be improved upon.

**Lieutenant Townsend Whelen, Thirtieth Infantry.**

The article of Lieutenant Mumma on the United States magazine rifle, model 1903, is most interesting. It is hoped that many of the expert shots will give their experiences with the new weapon so that we may have at hand as much information as possible before our first target season with it.

I do not believe that Lieutenant Mumma gives enough credit to the sling. In the infantry, where its use is now thoroughly understood, it is given the credit of 15 per cent. improvement in the scores or fifteen points in every twenty shots. In rapid fire in the prone positions its value is probably nearer 25 per cent. Those who have been fortunate enough to be present at the army or national competitions this year will realize at once that there is only one way in which to use the sling and the regulation that it "must be attached to its regular swivels and used in conjunction with the arm only" is a wise one. By all means the sling should be allowed as it is a great factor in good workmanship, in fact, as necessary as the wind gauge. So great is the belief in it in the infantry that most company commanders now make its use compulsory when shooting in the prone position.

The new rifle is certainly more accurate than the model '98 rifle or carbine. Its recoil is considerably greater, and as Lieutenant Mumma says, while this will not be ob ected to by the expert, it will certainly

increase the difficulty in developing good shots among recruits. I do not believe it desirable, however, to decrease the velocity o the cartridge to remedy this feature. The velocity of the new rifle was increased to 2300 feet per second to keep pace with the improvement in the small arms of foreign powers, and any decrease will certainly work to our disadvantage in this respect. The remedy, I thoroughly believe, lies elsewhere.

One of the gravest faults in the new rifle has been entirely overlooked by Lieutenant Mumma and many other writers on the subject; I refer to the short life of the barrel. The experiments of the Ordnance Department and of individual riflemen show that its accuracy begins to fall off rapidly when from 800 to 1200 shots have been fired from it. These experiments were made in slow fire. When the rifle is used for rapid fire and skirmish the erosion is much quicker. This is due partly to the wearing of the jacketed bullet, but mostly to the intensely hot gases of the large powder charge. A rifle which I had for trial was fired about 1000 rounds, shooting mostly through the marksman's course. During the last 100 rounds the rifle would not hold the four ring at 600 yards. The heat developed during a skirmish run was so great that one could smell the stock burning. The hot gases had fused the bore for about two inches in front of the chamber so that no rifling was visible.

Under present conditions it will be necessary to provide new barrels each target season if any good results are desired. We had too many examples this year of expert shots being ruined by clinging to their old rifles which were completely worn out and unreliable.

The only faults I have to find with the new rifle are the recoil and the short life. I thoroughly believe that the remedy for these is a mid-range cartridge—one having a lesser velocity and a lead bullet which will give accuracy at 600 yards. Such a cartridge a year ago would have been regarded as an impossibility, but riflemen throughout the country have been doing much experimenting and a charge has been evolved which is satisfactory in all respects. It consists of a bullet composed of an alloy of 3 per cent. copper, 6 per cent. tin, 6 per cent. antimony and 85 per cent. lead, weighing 207 grains and having a copper cap placed on the base, the cap covering the sides of the bullet for one-eighth inch from the base. This bullet measures .310 inches, which is .002 inches larger than the standard bore of the rifle. This large diameter is absolutely essential, as unless a perfect gas check is produced, gas cutting will occur and destroy accuracy. The alloy of which the bullet is composed is hard enough to stand the high velocity and the wrench of the ten-inch twist and the copper cap prevents the fusing of the base of the bullet by the powder gases. This bullet is driven by twenty-three grains weight of Laflin & Rand lightning powder, developing a velocity of 1700 feet per second. It gives the same accuracy as the service cartridge, requires about 150 yards

additional elevation on the rear sight and about one-third more allowance for wind. The recoil is almost nothing and it causes no wear at all to the barrel. This load has the advantage that it can be used on ranges where the full charge is unsafe and also that the bullet usually goes to dust on impact and is lacking in penetration. In it we have a charge which is cheaper to produce than the full charged ammunition, which will minimize the "flinching" among recruits and which will save the Government millions of dollars in worn-out barrels. It also has the advantage that it can be reloaded by the rifleman himself—tools for doing so being procurable on the market at small cost.*

I am of the opinion that this character of ammunition should be used in the marksman's course and in all special courses. The marksman's course should then be extended to include a special course to be taken after the regular course, consisting of ten shots slow fire at 200, 300, 500 and 600 yards, with the full charge to accustom all men to the full charge and to allow all to find the elevation and zero of their rifles with the full charge. When a recruit has once qualified as marksman using this mid-range load all his practice after that can be confined to the full charge ammunition, with no danger of developing the flinching habit, in other words, until the soldier qualifies as marksman he uses only the mid-range load, firing in addition forty rounds of full charged ammunition each year at short and mid-range.

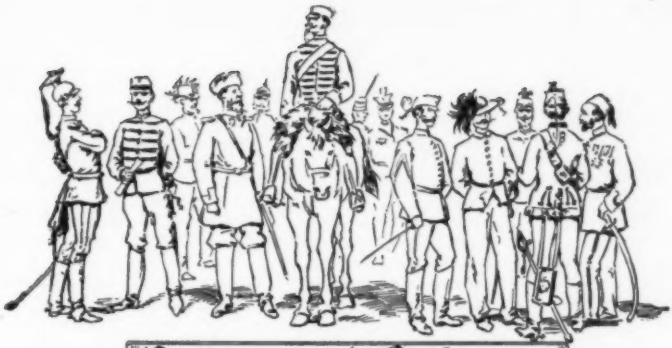
I am well aware that it is very undesirable to conduct range practice with ammunition which is so different from the kind which would be used in war, but I see no other economical way out of our difficulty. It seems to be either a new barrel each year or the mid-range load for recruit instruction.

Lieutenant Mumma evidently used the old form of sight. The new sight just adopted is a big improvement over the old and greatly increases the capabilities of the arm. It is not thought that any change need be made in the cut off. It is pretty hard to set it at exactly the point where the bolt pulls out and if the cut off is thrown boldly and quickly "on" and "off" no trouble will be noticed.

The ammunition which was issued for the new rifle prior to 1905 was defective in the thickness of the jacket of the bullet. In my practice with this ammunition I found that the jacket of about one cartridge in fifty would split and a miss would occur. Lately, however, the thickness of the jacket has been increased from .016 inches to .020 inches and this defect overcome. Thus if one wishes reliable ammunition he should choose that manufactured in 1905 or subsequent date.

The energy of the new rifle is terrific and a new form of frame for skirmish targets will have to be designed as a bullet hitting the present frame cuts it in two instantly.

(For additional comments see page 574.)



# Reviews and Exchanges.

## The Centennial of the Military Academy.*

DURING May of this year every graduate of the Military Academy whose address was known in Washington was presented with a copy of "The Centennial of the United States Military Academy."

The edition is in two volumes, and contains what may be called the *particular* history of West Point between the years of 1802 and 1902, from the founding of the Military Academy until the celebration of its one hundredth anniversary.

Aside from this, and yet a part of the centennial spirit in which the book is written, there is a vast fund of information relating to every phase of the academic and post-academic life.

There are many illustrations, all of them excellent, and many of the type that suggest cadet days to the oldest living graduate, and the youngest shavetail alike.

In volume I, we find first an introduction by the Superintendent of the Military Academy. This deals largely with the history of West Point since its occupation as a military post, and particularly since the establishment of the Academy. The subject of the anniversary is mentioned in the introduction, and the official order of exercises announced.

The following quotations from the Superintendent's introduction explain themselves:

"The year 1902 marked the completion of the first century in the life of the Military Academy, which was established March 16th, and formally opened July 4, 1802. The close of the academic year was decided upon as the most suitable time for commemorating the anniversary, and the occasion was celebrated with appropriate ceremonies on the 9th, 10th, and 11th days of June.

"The anniversary excited universal interest among graduates, who spared no effort to make it successful. Invitations to it were extended to the limit of securable accommodations at and near West Point, and it was a matter of great regret to all concerned that our means in this respect were not more ample, for the fact denied the Academy the pleasure of receiving and caring for many more

**The Centennial of The United States Military Academy at West Point, New York, 1802-1902.* Two Vols. Washington, 1904.

of its friends and well-wishers. A large proportion of the invited guests were present to take part in the ceremonies, and cordial letters of congratulation were received from those whose engagements prevented their attendance."

After the anniversary, it was believed that some record of the meeting of so many graduates should be made—this is thoroughly explained in the following, also from the introduction:

"It was decided to print a permanent memorial of the jubilee of the Academy a volume to be distributed to official guests, to members of Congress, and to the graduates of the institution. The preparation of the volume was put in charge of Professor Larned, Tillman and Wood, a committee of the Academic Board, and the editorial duties were confided to Doctor Holden, Librarian of the Academy. The volume has been printed by order of Congress, and is now published and distributed."

It contains:

I. The addresses of the President of the United States, the Secretary of War, and others before the official guests of the Academy June 11 and 12, 1902.

II. Addresses before the Association of Graduates, June 9th.

III. A series of chapters giving, in brief, the history of the Academy during the period of its existence, of the post of West Point during the Revolutionary period, and of the services of the graduates in military and in civil life. The illustrations and maps which accompany the text have been derived from many sources.

* * *

The chapters have been written by graduates who represent nearly every arm of the services and also civil life. The writers have been invited to express their own judgments in their own way, so that the chapters are personal, not official. At the same time it is believed that they will be welcomed as the first comprehensive and adequate accounts of the many varied activities and achievements of our graduates in every walk of life. Taken together they present a view of its activity of which our country may well be proud.

The President of the United States has said in his address (June 11th):

"This institution has completed its first hundred years of life. During that century no other educational institution in the land has contributed so many names as West Point to the honor roll of the nation's greatest citizens. * * * The average graduate of West Point during these hundred years has given a greater sum of tservice to the country through his life than has the average graduate of any other institution in this broad land."

Every graduate of the Academy is proud of these memorable words. We believe them to have been deserved in the past. We will do our best endeavor that they shall be true in the future.

This then gives an idea why "The Centennial of the United States Military Academy" should be of such vital interest to all graduates.

Moving beyond the introduction we find about 125 pages devoted to the celebration of the anniversary of the centennial banquet. The addresses of the several graduates who spoke on Alumni Day are herein published in full, and the responses to toasts at the banquet follow shortly after.

As illustrative of the feeling that this event inspired it might be well to state that at the time the centennial banquet was taking

place at West Point another was in progress many miles away in Manila, and yet another in mid-ocean.

*Banquet at Manila, June* 11, 1902.—On the 15th of April, 1902 there was organized at Manila the United States Military Academy Centennial Association to celebrate the one hundredth anniverasry of the founding of the Military Academy. All ex-cadets serving in the Philippine Islands constituted its membership. Its officers were Col. W. A. Rafferty (United States Military Academy, 1865), *President;* Lieut.-Col. George C. Greenough (1865), *Vice-President;* Major H. C. Carbaugh (1882), *Secretary and Treasurer*, and an executive committee composed of these officers, and of Col. W. P. Hall (1868): Capt. E. O. Fechét (1868), Col. C. A. Woodruff (1871), Lieut.-Col. A. H. Russell (1871), Lieut.-Col. G. S. Anderson (1871), Capt. F. de W. Ramsey (1885), B. T. Clayton (1886), W. W. Hart (1889), J. R. Lindsay (1892), J. A. Moss (1894), C. McK. Saltzman (1896), and A. S. Conklin (1897). On June 11th a banquet was given by the association. The menu is a little pamphlet bound in the Academy colors and illustrated with cuts of cadet and of army life. The spirit of the meeting of those graduates, far away from home, is irresistibly suggested by the make-up of the little volume. Here on a single page is the dreary north front of cadet barracks with the row of memorial elms, and below it the palms of Manila surrounding one of the outlying blockhouses for its defense. On another page is a cut of cadet guard-mounting in camp, and below it an automatic gun in action against Filipino insurgents. Both scenes were familiar to the 108 graduates who sat down to the centennial dinner, but their hearts warmed to the views of their rock-bound highland home—their country. It was their duty to serve that country, and with honor, in a distant land. As the United States Army transport *Hancock* was crossing the longitude of 180° W., June 11, 1902, the thirty-four officers present, representing the classes of 1879, 1887, 1888, 1890, 1894, 1895, 1896, 1897, and 1898, and veterans of the Civil War, celebrated the day by addresses and songs in mid-Pacific. Wherever the duty of a graduate called him his heart was with Alma Mater on this memorable day.

Now follows "The History of West Point, of the Military Academy and of the services of its graduates in war and peace.

In the table of contents we are directed to chapters of varied information, but of the most unqualified interest to one who wishes to know what the Academy is now, and what the Academy has been in its first hundred years of life.

Below I give some of the subjects dealt with:

"Origin of the Military Academy."

"Academic History of the Military Academy,"

"The Genius of West Point,"

"The Services of Graduates in the Various Wars,"

"The Services of Graduates as Explorers, Builders of Railways, Canals, Bridges, and the Like,"

"The Services of Graduates in Civil Life,"

"The Physical Training of Cadets,"

"Athletic Sports at the Military Academy."

All this and more is contained in the first volume, while in the second volume we find:

"Bibliographies of West Point (1694–1902) of the Military Academy (1776–1902), and of the writings of graduates (1802–1902)."

"List of Graduates United States Military Academy," etc., etc.

To those who were present at the centennial celebration the volumes will be a record of very entertaining and wholly cheerful recollections.

To the ones who were unable to attend (and they are in the majority) the work should be of incalculable value. Viewing the centennial volume from the standpoint of one who was not present at the reunion of graduates, I would say that we have nothing in history, sentiment or fact, more thoroughly our own.

W. I. WESTERVELT,
*First Lieutenant, Artillery Corps.*

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### History of the Thirteenth Infantry.*

CAPTAIN McALEXANDER, in his history of the regiment, has set a pace that other regimental historians will find it difficult to surpass. It may be doubted, too, if all regiments possess a regimental press capable of turning out so good a specimen of the bookmaker's art. The binding and maps are the work of outside offices, but the generous pages, clean type, well spaced, wide margins, and firm paper show the work of the regimental press and make it a pleasure to handle the book. It invites your attention by its personal attractions, and then lives up to its appearance, which is not always the case.

There are sixty-five illustrations, embracing portraits of sixty-eight named officers, two sergeants and one private of the regiment, as well as group pictures of the regimental non-commissioned staff and band, and the twelve companies which are now in the regiment. There are maps of the United States, Chickasaw Bayou, Arkansas Post, Vicksburg, Santiago de Cuba and vicinity, the San Juan battlefield and of the Province of Pengasinan, Luzon—all of which are illustrative of deeds of the regiment.

A notable illustration is of the regimental color, on which is inscribed "First at Vicksburg," this inscription being the result of the proceedings of a board of officers convened by G. O. No. 64, Headquarters Fifteenth Army Corps, Camp Sherman, August 5, 1863, to determine the honors to be awarded to the various regiments for their deeds in the assault on Vicksburg. The award of the board was as follows:

"The board find the Thirteenth United States Infantry entitled to the 'first honor at Vicksburg,' having in a body planted and maintained its colors on the parapet, with a loss of 43.3 per cent., including its gallant commander, Washington, who died at the parapet. Its conduct and loss, the board after a careful examination believes unequaled in the army, and respectfully ask the general commanding the department to allow it the inscription awarded."

A gallant tribute to a regular regiment, awarded by a board consisting of one brigadier-general, two colonels and one first lieutenant of the United States Volunteers.

In the reading matter, three chapters are devoted to the organization of the regiment in the spring and summer of '61, and its

**History of the Thirteenth Regiment*, United States Infantry: Compiled from Regimental Records and Other Sources. By U. G. McAlexander, Captain; Adjutant, Thirteenth Infantry Regimental Press, Thirteenth Infantry, Frank D. Gunn, 1905.

experiences during the Civil War; two chapters to the period from the Civil War to the war with Spain, one chapter to its service in Cuba in '98, and four chapters to Philippine experiences of the regiment. Then follows a chapter on "Military Commissions and Provost Courts in the Philippine Islands," by Capt. Harvey W. Miller, Thirteenth Infantry.

A chapter is devoted to the history of the other regiments of the same number in the United States Army. Of these there have been three—one organized for service in the anticipated war with France, 1798, one for the war with England in 1812, and one for the war with Mexico in 1847.

The last chapter in the book is headed "Incident and Comment," and it preserves a number of regimental traditions and stories which are well worth preserving.

Captain McAlexander, in his preface, cites the modesty of those who participated in great deeds as an obstacle to the preparation of his history. It is a pity officers do not more generally write out their reminiscences. After twenty years' knocking about, most officers have a fund of incident illustrative of the duties, joys and amusements of the service, and of the *personnel* thereof that is of unfailing interest. Official reports give a bare, bold outline of what has taken place, but such a letter as that of a former captain of the regiment, given on page seventy-three *et seq.*, will have the attention of the average reader who will not turn the pages to read official reports.

All regiments have their unofficial life, with a wealth of material in it which should be preserved for the instruction and amusement of those who follow after.

The Thirteenth is to be congratulated on its historian, and Captain McAlexander on the successful result of his labors.

S. C. MILLS,
*Insp. Gen. Dept.*

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## A Monster Heroism.*

"PORT ARTHUR," by Richard Barry, is an account of the investment and capture of that stronghold by the Japanese Army in the war just ended.

The story, so vividly told, is a splendid piece of descriptive writing, and as the author was one of the correspondents with the Japanese Army, the account naturally has a strong Japanese flavor; yet the many references to Russian bravery and Russian achievement bespeak the author's impartiality.

The opportunities of the author, who is evidently a keen observer, to study the high Japanese officials with whom he came in contact, as well as the men in the ranks, give especial value to his estimates of the ability and character of the Japanese people.

The volume is well printed and illustrated with exceedingly good reproductions of very artistic pictures. H. O. S. H.

**Port Arthur—A Monster Heroism.* By Richard Barry. New York: Moffat Ward & Co., 1905.

## Hernando de Soto.*

ALTHOUGH De Soto has been dead more than three hundred years, everything relating to his remarkable career continues to excite our interest. The volumes which are the subject of this review contain the narratives of the "Gentleman of Elvas," "Biedma," and "Ranjel," The later was private secretary of De Soto, and his diary is here published in English for the first time. The editor in his introduction to these narratives says that the object in publication has been to place within the reach of everyone interested in the subject the three most important contemporary sources relating to the expedition of De Soto. The "Gentleman of Elvas" tells us "that on Sunday the 18th day of May in the year 1539 De Soto sailed from Havana with a fleet of nine vessels. On Friday the 30th they landed in Florida and commenced explorations into the interior. They found the Indians exceedingly ready with their weapons, and so warlike and nimble that they had no fear of footmen, for if these charge upon them they flee, and when they turn their backs they are presently upon them." The narrative of the "Gentleman of Elvas" is filled with varied and interesting details of De Soto's great expedition, and of the hardships and meetings with Indians that were encountered by him and his followers.

Ranjel writes "Saturday, the last of April, 1540, the army set out from the place of barricade and marched nine days through a deserted country and by a rough way, mountainous and swampy, until May 8th, when they came to the first village of Quizqui, which they took by assault and captured much people and clothes; but De Soto promptly restored them to liberty and had everything restored to them for fear of war, although that was not enough to make friends of these Indians. A league beyond this village they came upon another with abundance of corn, and soon again, after another league, upon another likewise amply provisioned. There they saw the 'great river' (the Mississippi). Saturday, May 21st, the force went along to a plain between the river and a small village, and set up quarters and began to build four barges to cross over to the opposite side. Many of these conquerors said this river was larger than the Danube."

In the narrative by the "Gentleman of Elvas" the death of Hernando de Soto is chronicled as follows:

"The 'governor,' conscious that the hour approached in which he should depart this life, commanded that all the King's officers should be called before him, the captains and the principal personages, to whom he made a speech. He said that he was about to go into the presence of God, to give account of all his past life, and since He had been pleased to take him away at such a time, and when he could recognize the moment of his death, he, His most unworthy servant, rendered Him hearty thanks. He confessed his deep obligations to them all, whether present or absent, for their great qualities, their love and loyalty to his person, well-tried in the suffrance of hardship, which he ever wished to honor, and had designed to reward, when the Almighty should be pleased to give him repose from labour with greater prosperity to his fortune. He begged that they would pray for him, that through mercy he might be pardoned his sins, and his

*Narrative of the Career of Hernando De Soto. 2 Vols. Illustrated. New York: A. S. Barnes & Co. 1904.

soul be received in glory. He asked that they would relieve him of the charge he held over them, as well of the indebtedness he was under to them all, and to forgive him any wrongs they might have received at his hands. To prevent any divisions that might arise, as to who should command, he asked that they would be pleased to elect a principal and able person to be governor. one with whom they should all be satisfied and, being chosen, they would swear before him to obey: that this would greatly satisfy him, abate somewhat the pains he suffered, and moderate the anxiety of leaving them in a country they knew not where."

Everyone interested in the explorations of De Soto or in the history of the period when Spain was in America will find these narratives as interesting as the romance of "Robinson Crusoe."

E. H.

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### The Giant of Three Wars.*

THAT Winfield Scott possessed many of the characteristics of a truly great man, in addition to being a great soldier, is readily determined by those who read the history of his life and are familiar with the period of his active work, but in these latter days when heroes replace each other almost as rapidly as the nights follow the days, there are many who do not take the time to think of those whose sacrifices and achievements a few generations back contribute to the happiness and contentment now enjoyed, unless special attention is drawn to them. To these persons such a book as this short biography of General Scott by James Barnes is especially valuable.

The work is so condensed that only the most prominent events in the life of General Scott are recorded, but it is sufficient to remind one of the difficulties he overcame in establishing his place in history and working his way into the affections of the American people.

The book is one which should especially be in all school libraries and is an excellent one to be read by the busy man who has permitted daily cares to crowd from his mind a knowledge of the life and achievement of one of the nation's earlier idols.

The volume is well printed and tastefully bound. Four artistic drawings by Gordon H. Grant admirably illustrate as many incidents related in the text.

H. O. S. H.

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### Slocum and His Men.†

THIS book is a valuable contribution to the history of the Civil War. Very compact, it is full of information, absolutely accurate. The Twelfth Corps is fortunate in its historian. The biography of Maj.-Gen. Henry Warner Slocum matches well with the story of his men.

Slocum and his men did their duty to the full in the Army of the Potomac until after Gettysburg and thenceforward in the West. At

**The Giant of Three Wars*: Life of Gen. Winfield Scott. By James Barnes (Ill.) New York: D. Appleton & Co., 1903.

†*In Memoriam—Henry Warner Slocum*—1826-1894. Published by authority of the State of New York, under the Supervision of the N. Y. Monuments Commission. Albany, 1904.

Antietam they preceded Sumner's Corps and suffered severely, losing among others their fine old veteran commander, General Mansfield. At Chancellorsville, too, they had a strenuous time of it. At Gettysburg, the corps was split up and "bucketed about" in a bewildering way, but its fraction, wherever placed, were barriers impassable to the Confederates. The "bluff" of Greene's Brigade—a mere skeleton—on the night of July 2, 1863, saved our right flank, to which our reserve artillery and line of supplies were perilously close. There was nothing spectacular about that fierce fight of a mere skirmish line in the dark, but it served as good a purpose as the occupation of Little Round Top under General Warren, the advance to the Salient by General Sickles, which disconcerted the plans of Longstreet to turn our left, the sacrifice of the First Minnesota by General Hancock, or even the repulse of Pickett. In the Chattanooga campaign, the Twelfth Corps was conspicuous in the famous "Battle above the Clouds" and then "from Atlanta to the Sea" and from the sea to the final surrender the "star" corps achieved much and earned deserved glory.

The life of General Slocum cannot well be summarized. The book tells of his troubles in and before the war. Those troubles continued after the war, but he triumphed over all. Very unselfish and modest, he was stubbornness personified in holding to what was right. The expression for which he is most famous was simply characteristic. At the famous council of war at Gettysburg, when gallant generals had an idea that perhaps it might be well to retire to Pipe Creek, Slocum's words were, "Stay and fight it out." All his life he was unbudgeable, but he was appreciated. A fine equestrian statue of him has recently been erected in Brooklyn, N. Y., where he lived and died.

The book is handsomely bound in buckram, with numerous excellent illustrations, four elaborate maps of Antietam, Chancellorsville, Gettysburg and Lookout Mountain, and a fine portrait of General Slocum for a frontispiece. O'G.

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## Dictionary of Battles.*

THIS volume is a handy and useful reference book in which the author has gathered data relating to about two thousand of the great or decisive battles of the world. Beginning with the earliest known conflicts, the list is brought down to include the earlier engagements of the Russo-Japanese War, just ended. The list is arranged alphabetically. From comparisons made with standard works the information is found to be reliable. The best idea of the character of the work can be given by reprinting the data regarding a single one of the battles chosen at random, for instance·

"LEUTHEN (SEVEN YEARS WAR).

"Fought December 5, 1757, between 33,000 Prussians under Frederick the Great, and 90,000 Austrians, under Prince Charles, of Lorraine and Count Daun. Frederick made a feigned attack on the Austrian right wing, and then under cover of ground withdrew the

*_Dictionary of Battles_, From the Earliest Date to the Present Time. By Thomas Benfield Hurbottle. New York: E. P. Dutton & Co., 1905.

major part of his force, and strongly attacked the Austrian left, which was driven back and finally overthrown by a charge of cavalry. The Austrians lost 7000 killed and wounded, 20,000 prisoners, including three generals and 134 guns. The Prussians lost 5000 killed and wounded. In consequence of this victory, Breslau surrendered to Frederick, with over 18,000 troops, on December 10th."

H. O. S. H.

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### 1815—Waterloo.*

THIS interesting translation of the work of a member of the French Academy is thorough from the standpoint of the subdivision of topics and their order. From the efforts of Napoleon to create an army on his return from Elba, to the rout of the army on the night of the 18th, the movements and contacts of troops are fully described, and with great fairness from the French point of view, although much of the responsibility for the result, usually laid upon the Emperor, is placed upon his subordinates.

Fighting the battle over, he thinks that if d'Erlon had not been a half hour late, Vandame over three hours, and Ney too circumspect, the army would have been across the Sambre River before noon, and Blücher and Wellington would have been separated over twenty leagues. Again, if his subordinates had been properly inspired, Ligny would have become a crushing blow. Grouchy, he describes as acting like a blind man, and whom Napoleon did nothing to enlighten. Napoleon relied on Grouchy to close in on his right, but not until one o'clock on the day of Waterloo did Napoleon despatch the order to Grouchy to do so.

The work is a scholarly and valuable addition to the literature of Waterloo, and a summary of the conduct of the Emperor will indicate its manner of execution.

He says: "Never did Napoleon exercise more effectively the command, and never was his action more direct. But, obliged precisely to play that rôle of *sergent de bataille*, which is condemned by Maurice de Saxe, he employed himself entirely in repairing the mistakes, the forgetfulness and the faults of his lieutenants. And, seeing all his combinations miscarrying, all the attacks proving unsuccessful, his generals wasting his finest troops, his last army melting away in their hands, and the enemy laying down the law to him, he lost resolution with confidence, hesitated, confined himself to providing for the most imminent perils, awaited the hour, allowed it to pass, and dared no risk all in time to save all."

C. E. L.

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### The Post Exchange.

THE above is the title of a volume by Captain F. S. Armstrong United States Army, published by the Franklin-Hudson Publishing Company. As stated in the beginning, the book will be of great assistance to all post exchange officers, especially when they have been detailed in charge of their first exchange.

It contains notes on methods of buying, selling, marking, checking,

**Waterloo.* By Henry Houssaye, translated by S. R. Willis, published by Franklin-Hudson Publishing Co., Kansas City, Mo., oct. and pages 268.

—in fact on everything pertaining to the conduct of an exchange, and ends with a very simple and practical method of keeping books, which, if followed, would do much to simplify and unify the various systems now in vogue in the army.

Sample pages of the books and blanks to be used in the transaction of business are included in the volume.

E. M. J., Jr.

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### Hester of the Grants.*

THIS tale of romance is set in the frame of the incidents of the Revolutionary War about Bennington. Stark, his observation about Molly, Ethan Allen and his bold request to Parson Dewey, who, at meeting, gave God the glory for Ticonderoga, to please make mention that he was there, Tories, Patriots, spies and lovers, all find place and plenty to do in the course of the pages of the novel. The authoress is the daughter of General Peck, for many years Adjutant-general of Vermont, and has brought to the construction of her story a fund of historical data and a patriotic enthusiasm worthy of a true Green Mountain girl. The stirring incidents of war are deftly interwoven with the gentler experiences of the heroine. It is an excellent example of a clean-cut American novel, full of action and of absorbing interest throughout, and may be safely recommended to holiday book buyers.

*Hester of the Grants. By Theodore Peck (Oct. p 429, Fox Duffield & Co. New York, 1905.)

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## COMMENT AND CRITICISM.

(*Continued from page 564.*)

### "The Caliber of the Revolver."

**Le Chef d'escadron d'Artillerie Ferrus, Directeur "Revue d'Artillerie."**

Among the interesting articles contained in the Journal of the Military Service Institution of March and April, 1905, I have read with much pleasure the article "The Caliber of the Revolver," by Major Bullard.

I believe that this officer is perfectly right to fight against the revolver of small caliber, having besides the experience of the war, when the revolver was considerably used. We have fallen in the same error like a great many other armies, with our revolver of 8 m.m. (.32) and I wish to make my comrades of the French army acquainted with the arguments of Major Bullard, consequently ask for authority to publish in the "Revue d'Artillerie" the translation of Major Bullard's article.

# Our Exchanges.

## Military.

*Journal of the Royal Artillery.*—(*July.*)—The R. A. Regimental Plate at Woolwich. The Field-Gun of 1905. Searching Areas. The Organization, Equipment and Employment of Garrison Artillery Companies. (*Aug.*)—Principles that should govern the allotment to, and the employment in, Coast Fortresses, of Light Q. F. Guns, etc. R. A. Regimental Plate, etc. (*Sept.*)—Proposal to add 12-inch B. L. Guns to Armament of First-class Fortresses. Principles that should govern the Allotment to, and the Employment in, Coast Fortresses of Light Q. F. Guns. Why have we returned to Case 1? The Construction of Tactical and Strategical Schemes and Problems. Discipline.

*Journal of the Royal United Service Institution.*—(*June.*)—Comparison between Continental and English Methods of Military Education. To Lhasa with the Tibet Expedition, 1903-1904. Manual of Instruction in Field Works for the Japanese Infantry. (*July.*)—French Second-class Armored Cruiser *Chancy*. The Militia in 1905. Possibility of Our Fleets and Harbors being Surprised. Organization and Work of Army Corps. Division and Brigade Staffs in the German Army. A Brief Historical Sketch of the Irish Infantry Regiment of Dillon, etc., in Service of France. (*Aug.*)—Modern Military Rifles. Volunteers in 1905. Royal Military College of Canada. Indian Sibahdar Cavalry. (*Sept.*)—Comfort of Troops on Active Service. Imperial Yeomanry in 1905. Formation of a Royal Army Reserve Staff Corps of Officers for British and Indian Armies. How Shall We Deal with the Wounded in a Naval War. Official Records of the Union and Confederate Armies.

*Journal of the Association of Military Surgeons.*—(*July.*)—The Needs and Advantages of an International Congress of Military Surgeons. Camp Sanitation. U. S. Naval Medical School. Military Hygiene, Its Theoretical and Practical Study in the Regular Army and Militia Forces. (*Aug.*)—Organization and Operation of the Medical Service at the Front in Modern Warfare. The Sanitary Sergeant. Surgical Experiment after a Venezuelan Battle. Experiences of a National Guard Regiment in Maneuvers at Manassas. Medication on the Firing Line. The Surgeon of the National Guard. The Use of Motor Wagons in the Medical Service at the Front. (*Sept.*)—Sanitary Study of Culebra as a Naval Base. Military Medical Education. Perforating Gun-shot Wound of the Stomach. Note on Tropical Dysentery. (*Oct.*)—Observations on the Treatment of Fractures. Relations of the Medical Department to the Health of Armies. First Aid to the Wounded in Naval Battles. Chest Wound by a Krag Rifle, etc. Construction in, and Equipment of Military Hospitals for Contagious Diseases. The Medical Officer in Campaign.

*Journal of the United States Cavalry Association.*—(*July.*)—The Resources of Russian Railroads in Peace and War. Five Years a Dragoon, '49 to '54. Effectiveness of Rifle Fire Target Practice. Scouts. Visual Drill Signals. (*Oct.*)—The Service Pistol and Its

Caliber. Pistol Shooting. Some Indian Experiences. Yellowstone Expedition of 1873. Five Years a Dragoon—'49 to '54—Cont.

*Journal of the United States Artillery.*—(*May.*)—Coast Artillery. Projectiles. Targets for Coast Artillery Practice. Mobile Artillery

*Journal of the United States Infantry Association.*—(*July.*)—Athletic Training. Rôle of the Machine Gun in Modern War. A Militiaman's View of the Manassas Maneuvers. National Guardsman's View of Manassas. Reserves, Districts and Mobilization. Imperial Chinese Infantry. Company Cooks and Kitchens. The New Marching Shoe. Why Captains of Infantry Should be Mounted. (*Oct.*)—The Recruit Depot, Columbus Barracks. Field Service in Mindanao. Marching. Rôle of Machine Guns in Modern War. Annual Athletic and Gymnastic Tests for the Army. Physical Training in the Army. How to Obtain a Good First Sergeant. Plea for the Emergency Ration. Elevation and Windage Charts. Combination Intrenching Tool and Wire Cutter.

*Journal United Service Institution of India.*—(*April.*)—Circumstances Which Determined such Extensive Employment of Mounted Troops in the Latter Phases of the Boer War, etc. The Two Sieges of Bhurtpoor. Russian Strategy in Manchuria. Can Cavalry Charge Unbroken Infantry? Scheme for Facilitating Inter-Communication During Action. Route Marching. Military Snow-Shoeing in Sweden. Notes of Training of British Infantry Scouts in Reconnaissance.

*Proceedings of the Royal Artillery Institution.*—(*June.*)—An Epitome of the Afghan War: 1878-'79 and 1879-'80. A Neglected Item in Tactical Problems of the Future. Royal Artillery and Army Topography. Scheme for Controlling Battery Fire from a Distance. Targets and Models for Instruction in Barracks. Protection for Infantry in Action.

*Revue Militaire.*—(*Aug.*)—New German Military Laws of April, 1905. Reorganization of the English Army. (*Sept.*)—Recruiting of the Officers in Prussia. Law and Legislation on the Status of the Non-Commissioned Officer of the Italian Army.

*Revue de l'Armèe Belge.*—(*May-June.*)—Notes Concerning the Russo-Japanese War. Employment of Reserves on the Battle-field. Military Art at the Exposition of Lige.

*Revue d'Artillerie.*—(*Aug.*)—Sick and Wounded in the Japanese Army. New Heavy Rapid-firing Field Howitzers of the German Army.

*Royal Engineers Journal.*—(*July.*)—New Measurements of the Distance of the Sun. Railways in War. Organization of Engineers for an Infantry Division. Landing Operations at the Essex Maneuvers, 1904. Search-lights in Recent Night Operations at Chatham. The Army System of Correspondence. Turbine on Atlantic Steamers. (*Aug.*)—Training and Organization of Military Engineers. Organization of Royal Engineers for War. Army Railway Organization. The Siberian Railway. Battle of Telissu or Vafangu. Design of Tall Chimneys. (*Sept.*)—The R. E. South African War Memorial. Short Sketch of Napoleon's Campaign in Italy, 1796-'97. Military Education in the U. S. of America. Rifle Ranges. Engineers of the Spanish Army. Persian Deserts and Gardens.

*United Service* (New York).—(*July.*)—Diary of a Canoe Expedition into the Everglades in 1842. *The Times* History of the War in South Africa. The Art of War in '62. Shiloh. (*Aug.*)—First March of the Fifth Infantry in Montana. Battle of the Sea of Japan. Retribution of Doña Clara. (*Sept.*)—Strategy and Tactics of the Russo-Japanese War. The Contest for Sea-Power. The Modern War, etc. Old France and Young America. British Naval Policy and German Aspirations. Strategy and Tactics of the Russo-Japanese War. Military Reminiscences of the Rebellion.

*United Service Magazine* (London).—(*July.*)—The Japanese Trafalgar. The Future of Submarine Mining. Can Coast Artillery be Manned by Volunteers? Russo-Japanese War. Minor Expeditions of the British Army, 1803 to 1815. The First of the Great Drives. Military Engineering in Peace and War. Entrenching and Range-finding. Cavalry Regiments. The Armory System in New York. The Sword and the Pen. Notes on Imperial Federation for Defence. (*Aug.*)—Biassed Criticism. Speed. Battle of Trafalgar. Minor Expeditions of the British Army, 1803-1815. Russo-Japanese War. Transmission of Orders and Information in War. The Price of Peace. The Short Rifle. Result of Bad Shooting. Jobbery under Arms. The Underpaid Army Officer. The Case of the N. C. O. (*Sept.*)—Notes on the Principles of Naval Battle Tactics. The Evolution of Modern Signalling. The Passing of Port Royal. Speculations with Regard to Possible Developments of Mechanical Appliances in Warfare. Minor Expeditions of British Army, 1803-1815. Russo-Japanese War. A Permanent Army on Permanent Principles. The Gods of War. Regimental Officers. Failure of the Double-Company System. The Training of the Soldier. (*Oct.*)—Nelson and Trafalgar. He was a Man to Love. Personality of Nelson. Recent Calumniators of Nelson. The Standard Nelson and His Times in His Relation to Our Empire To-day. Imperial Defence. Nelson's Tactics at Trafalgar. The Militia—Its Past and Future. Early History of the Yeomanry. Volunteers a Century After Trafalgar. Canadian Militia, Past, Present and Future.

## Naval.

*Proceedings of the United States Naval Institute.*—(*June.*)—The Truth about Naval Administration. Desertions from the Navy. The Submarine as an Enemy. Promotion, Present and Prospective. Addendum to "Operations of the Navy and Marine Corps in the Philippine Archipelago, 1898–1902.—(*Sept.*)—Compromiseless Shippo. Commodore Biddle's Visit to Japan in 1846. Draft of a Bill for increasing the Commissioned Personnel of the Line of the Navy. The Naval Academy Miniature of John Paul Jones. Aid to Systematic Firing of Marine Boilers. A Personal Error in estimating the Direction of a Sound. William Chauvenet and the U. S. Naval Academy. The Battle of the Sea of Japan. Recoil.

**Received for Library and Review.**

*The Gunner's Examiner.* Prepared by Harold E. Cloke, Capt. A.C. U. S. Army. (New York.) John Wiley & Sons., 1905.

1815. *Waterloo.* By Henry Houssaye of the French Academy. (Kansas City, Mo.) Franklin-Hudson Pub. Co. 1905.

*The Post Exchange.* By Captain F. S. Armstrong, U.S.A. (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

*The Prevention of Disease* in Armies in the Field. By Robert Caldwell, F. R. C. S., D. P. H. Major R. A. M. C. (New York.) William Wood & Co., 1905.

*History of the Thirteenth U. S. Infantry.* By U. G. McAlexander, Captain, Adjutant Thirteenth Infantry. Regimental Press Thirteenth Infantry., 1905.

*The Science of War.* By Col. C. F. R. Henderson. (New York.) Longman's Green & Co., 1905.

*From the Yalu to Port Arthur.* By Oliver Ellsworth Wood, Lieut. Colonel U. S. Artillery. (Late Military Attaché) (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

*Catechism on Field Training.* Third Edition. By Major S. T. Banning, Royal Munster Fusileers. Gale & Polden, Ltd., 1905.

*Notes and Suggestions of the New Infantry Drill Regulations.* By Capt. M. B. Stewart, Eighth Infantry. Senior Instructor Infantry Tactics U. S. Mil. Academy and Capt. R. C. Davis, Asst. Instructor U. S. M. C. (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

*Annual Reports of the War Department for the Fiscal Year ended June* 30, 1904. Vol. XI. Report of the Philippine Commission. Part I. (Washington.) Gov. Printing Office., 1905.

*The Provisioning of the Modern Army in the Field.* By Col. Henry G. Sharpe. Asst. Com., Gen. U. S. A. (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

*The China-Japan War.* By Vladimir, lately of the * * * Diplomatic Mission to Korea. (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

*The Truth about the War.* By J. Taburno. Translated by Victoria von Kreuter. (Kansas City, Mo.) Franklin-Hudson Pub. Co., 1905.

# Editor's Bulletin.

**Return of Confederate Flag.**

A pleasant incident in the history of the Institution, since the issue of the last number of the JOURNAL, was the return of the battle flag of the Eighteenth Alabama Infantry, C. S. A., which was deposited in our Museum many years ago by the late Major-General S. Wiley Crawford, who commanded a division of the Fifth Corps, Army of the Potomac at Gettysburg and Five Forks. The flag was inscribed, "*Shiloh*," "*Farmington*," "*Blackland*." The correspondence relating to the matter follows:

STATE OF ALABAMA,
DEPARTMENT OF ARCHIVES AND HISTORY.

"September 12, 1905.

"My dear Sir:—I have the honor to acknowledge the receipt of your valued favor of the 8th inst., advising me of the return to this State of the flag of the 18th Alabama Regiment by the Military Service Institution, of which you are Secretary. The flag reached us promptly.

"In behalf of the State, it now gives me very great pleasure to thank your Executive Council for its patriotic conduct in the premises. I also desire to thank you for your good offices in hastening favorable action.

"Herewith I enclose clipping from the *Montgomery Advertiser* of the 9th inst., in which will be found an account of the receipt of the flag.

Very respectfully,
THOMAS M. OWEN.

THE SECRETARY,
MILITARY SERVICE INSTITUTION,

SENDS BACK THE FLAG.

*Montgomery Advertiser.*

The flag of the old Eighteenth Alabama Regiment, which signalled to battle so many of the Confederate braves of this section of the State, now nestles in the pennant collection of the Alabama Department of Archives and History, having been received yesterday by Governor Jelks from the Military Service Institution of the United States at Governor's Island. The flag was obtained principally through the endeavors of Dr. Thomas M. Owen, director of the department.

The bunting, with its torn and tattered folds, was received through the mails, having been sent by Brigadier-General T. F. Rodenbough, of the United States army, secretary of the Service Institution. It was through the kindness of a lady in New Orleans that Dr. Owen was informed of the flag being on exhibition in the museum of the institution. She happened to see it while on a visit to New York and Governor's Island.

Her discovery was reported to Dr. Owen who immediately thereafter began negotiating for its return here. The lady's information came through General George P. Harrison, of Opelika, Commander of the Alabama Division of Confederate Veterans, whom she wrote in regard to the matter.

An answer to a letter of inquiry sent by Dr. Owen, revealed that the secretary of the Institution would consider the proposition and it was found by a meeting of the Executive Council that there was no objection to the flag being returned to Alabama. Previously Governor Jelks had been requested by Dr. Owen to correspond with the secretary and use his influence for obtaining the relic, and it was to the Governor that the following reply was sent:

"THE MILITARY SERVICE INSTITUTION OF UNITED STATES

"Governor's Island, N. Y., September 7.

"To His Excellency, the Governor of Alabama,

Montgomery, Ala.:

"Sir:—Some time since a communication was received from Thomas M. Owen, LL. D., Director, State of Alabama, Department of Archives and History, inquiring if it would be possible for the Military Service Institution to return to your State the flag of the 18th Alabama regiment, C. S. A., then in our museum.

"At a meeting of the Executive Council of the Institution, held August 18th, I was instructed to return the flag to the Governor of Alabama as requested.

"In accordance with the resolution I have this day forwarded by mail, under separate cover, to your address, the flag in question, of which please acknowledge receipt.

"Very respectfully,

"T. F. RODENBOUGH,

"Brigadier-General, U. S. A., Secretary."

The flag of the Eighteenth Alabama is dear to many survivors of the war between the States who are privileged by the magnanimity of their erstwhile enemy's sons to gaze upon it this late in the age. The flag was raised at Auburn in September, 1861, and mustered out in Meridian, Miss., May 4, 1865.

The regiment, from a purely military standpoint, had a varied experience in the question of commanders. It was commanded at different times by four colonels. The first was Colonel E. C. Bullock, of Barbour County, who died in the service of the Confederacy. Colonel Bullock's name is well known in Alabama history. A fine oil portrait of Colonel Bullock, recently contributed, now hangs in the gallery of the Historical Department at the capitol.

The second colonel of the regiment, the successor of Colonel Bullock, was Colonel Eli S. Shorter, also of Barbour County. Governor Shorter of Alabama was a brother of the second colonel of the Eighteenth regiment.

Upon Colonel Shorter's retirement from the colonelcy of the Eighteenth, Colonel James T. Holtzclaw, of Montgomery, succeeded in command. Colonel Holtzclaw died at a comparatively recent date. The command finally fell to Colonel P. F. Hunley, of Shelby, who originally mustered the men out. His accession was due to the promotion of Colonel Holtzclaw to the rank of brigadier general.

By request of Director Owen, Dr. E. W. Jones, a Jefferson County editor, is preparing a history of the Eighteenth Alabama

to be presented to the department to accompany the flag. Dr. Jones is now running the narrative in serial form in his paper, *The Jones Valley Times*.

The regiment, briefly stated, was composed of companies from the counties of Coffee, Coosa, Covington, Butler, Pike, Tuscaloosa, Talladega, Shelby and Jefferson. Jefferson County furnished two companies. * * * * *

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**Accessions to the Museum.**

Since the publication of the last number of the JOURNAL, a number of contributions or loans to the Museum of the Institution have been received, as follows:

From COLONEL E. E. DRAVO, Sub. Dept. U. S. A. (contribution) (1) rifle, (2) carbine, (3) spark arrester, (4) insurgent's sounder. These were all captured from the insurgents at San Mateo, Luzon, P. I., December 19, 1899 ("Lawton's Last Fight").

From COLONEL E. E. BRITTON, N. G. N. Y. (contribution): (1) Filipino Battle-flag (captured by Major Cook's battalion, Thirteenth Infantry, at Mavitac, Laguna Province, P. I., September 17, 1900. (Lieutenants Mitchell and Cooper were killed in this action.) (2) Form of Receipt (Forced Loan, Filipino Revolutionary Government), (3) Commission (issued by Aguinaldo to Gregorio Ramos).

From JOSEPH S. RODENBOUGH, ESQ., Easton, Pa. (loan) (1) Large framed copy of Ehninger's drawing of General Grant driving the trotting horse "Dexter."

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**Amendments to the Constitution.**

With a view to renew the Articles of Incorporation of the Institution, certain additions to or changes in the phraseology of the Constitution, in accordance with legal usage, have been submitted to the membership. No change in present location nor extension of the control of the Institution is contemplated by these amendments. A large number of votes have been cast, and the result will be made known at the next General Meeting.

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**Essays received by Secretary**

The following essays have been received by the Secretary in competition for prizes:

*Gold Medal.* Essay submitted, signed "LOYAL, 21."

*Seaman Prize.* Essays submitted, (3) signed "JOHN GRANT, 19," "PRECEPTOR, 13," "FANTASSIN, 42."

Journal of the Military Service Institution 1878 — 1905

Governor's Island N. Y. H.

# THE JOURNAL

## JANUARY-FEBRUARY, 1906

*OME of the papers approved for early publication in this JOURNAL.*

I. "HOW FAR DOES DEMOCRACY AFFECT THE ORGANIZATION AND DISCIPLINE OF OUR ARMIES, AND HOW CAN ITS INFLUENCE BE MOST EFFECTUALLY UTILIZED?"—(The Seaman Prize Essay for 1905.)

II. "SOME THEORIES ON MARTIAL LAW ELUCIDATED FOR THE STUDENT."—By Brigadier-General J. W. Clous, U. S. A.

III. "A WINTER WITH THE RUSSIANS IN MANCHURIA."—By Colonel V. Havard, Medical Department.

IV. "VENTILATION OF MAGAZINES."—By Lieut. C. D. Winn, Artillery Corps.

V. "MANEUVERS IN THE SWISS ARMY." Trans.—By Lieut.-Col. A. C. Sharpe, 30th Infantry.

VI. "ELECTRICITY IN MORTAR CONTROL AND COMMUNICATION."—By Lieut. R. Davis, Artillery Corps.

VII. "EMPLOYMENT OF PHILIPPINE SCOUTS IN WAR."—By Major W. H. Johnston, Philippine Scouts.

VIII. "NAPOLEON IN ITALY."—By Col. R. W. Leonard, (late) 12th N. Y. Volunteers.

IX. "THE TORPEDO FOR COAST DEFENSE."—By Capt. F. A. Wilcox, Adjutant 30th Infantry.

X. "TYPES AND TRADITIONS OF THE OLD ARMY." (1) "The Return of the Captains, 1905," an episode of the Gettysburg Battlefield.—By Col. W. H. Harrison (formerly Capt. 3d U. S. Cavalry). (2) "Extracts from the Military Journal of the late Brigadier-General Zenas R. Bliss, U. S. Army, 1860-65."

*THE PUBLICATION COMMITTEE invites contributions of original papers, translations and comments upon current topics. Attention is called to "Gold Medal," "Seaman," "Short Paper," and "Santiago" prizes described elsewhere.*

# The Military Service Institution.

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The SECRETARY OF WAR. The LIEUTENANT-GENERAL.

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*Term ending* 1911.

Lieut.-Col. D. L. BRAINARD, Subsistence Dept.
Captain F. W. COE, Artillery Corps.
Colonel E. E. DRAVO, Subsistence Dept.
Brig.-Gen. A. L. MILLS, United States Army.
Colonel F. A. SMITH, Eighth Infantry.
Bvt. Major-Gen. A. S. WEBB, (late) U. S. A.

*Term ending* 1909.

Major G. S. BINGHAM, Quartermaster's Dept.
Colonel J. E. GREER, Ordnance Dept.
Colonel W. R. LIVERMORE, Corps of Eng's.
Major C. E. LYDECKER, N. G. N. Y.
Lieut.-Col. A. MURRAY, Artillery Corps.
Col. C. C. SHIPPEN, Pay Dept.

*Term ending* 1907.

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## MEMBERSHIP AND DUES.

Membership dates from the first day of the calendar year in which the "application" is made, unless such application is made after October 1st, when the membership dates from the first day of the next calendar year.

Initiation fee and dues for first year $2.50; the same amount annually for five years subsequently. After that two dollars per year. This includes the Journal. Life membership $50.

**NOTE.—Checks and Money Orders should be drawn to order of, and addressed to, "The Treasurer Military Service Institution," Governor's Island, New York City. Yearly dues include Journal.**

**Please advise promptly of changes of address.**

# Annual Prizes, 1905

(For Rules governing awards, see January, March or May numbers.)

## Gold and Silver Medals

*First Prize*—Gold Medal, $100 and Life Membership.

*Second Prize*—Silver Medal, $50 and Honorable Mention.

*Subject:* "The Enlisted Man's Contract with the Government; The Mutual Obligation it Imposes and How Its Violation May Best Be Avoided." (*Essays due Jan. 1, 1906.*)

## The Seaman Prize

*First Prize*—One Hundred Dollars in Gold.

*Subject:* "How Far Does Democracy Affect the Organization and Discipline of Our Armies, and How Can Its Influence be Most Effectually Utilized." (*Essays due Nov. 1, 1905.*)

*Second Prize*—Fifty Dollars.

*Subject:* "Military Hygiene, and How Can the People of the United States Be Educated to Appreciate Its Necessity?" (*Essays due Nov. 1, 1906.*)

## The Santiago Prize

*Prize*—Fifty Dollars.

*Subject:* "For the Best Original Article Upon Matters Tending to Increase the Efficiency of the Individual Soldier, the Squad, Company, Troop or Battery, Published in The Journal of The Military Service Institution During Twelve Months." (*Ending Dec. 1, 1905.*)

## Short Paper Prizes

*Prizes*—Fifty Dollars and Certificate of Award.

*Subjects:* Best Essay on Matters Directly Affecting the Infantry ("Hancock"), Cavalry ("Buford"), Artillery ("Hunt") and the General Service ("Fry"), Respectively, Published in the Journal During a Twelvemonth.



T. p. + I. frag'd here.

# Announcement

## Back Numbers of the Journal

Copies of Numbers 1, 2, 3, 4, 5, 11, 15, 21, 50, 69, 71, 79, 93, 98, 99, 117, 119 and 126 of the JOURNAL OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES may be disposed of at a premium by communicating with the Secretary, M. S. I., Governor's Island, N. Y.

# Publisher's Department.

## HEINZ LUXURIES.

On the banks of the Allegheny, North Side, Pittsburg, stands the largest manufacturing plant of its kind in the world. This group of modern buildings is devoted to the preparation of Heinz "57 Varieties" of food products and the doors of the establishment swing always open to those who may be interested enough to come. Thousands take advantage of the opportunity thus afforded every year. The fact is impressed upon every visitor that this open-door policy is a guaranty, not only to them who have the privilege of going through the plant and seeing how clean and neat the Heinz model kitchens are, but also to the many thousands who never have the same opportunity.

Another thought which occurs to the visitor is that many thousands of families must have outgrown the venerable custom of putting up their own preserves, pickles, fruit-butters and jellies, baking their own beans, toiling over their own mince-meat—that endless task—and doing dozens of things which once made kitchen work so burdensome. If not, where could all these immense quantities of appetizing good things go which they have seen being prepared?

The size of the Heinz plant is considered by H. J. Heinz Co. themselves as only an incident. Before they prepared many food products by the ton, they prepared a few products well—quality first, quantity next. This has been the plan from the beginning. That is the secret of the standing which Heinz products have attained, and it is a very thoughtless person who does not carry away a very wholesome lesson after a visit to the famous home of the "57."

* * *

**Extract from Editorial of the New England Medical Monthly for August, 1905.**

In response to a number of inquiries which have reached us from our readers as to the composition of Liquozone, we will say that the vaunted cure-all properties of Liquozone are a snare and a delusion.

All the analyses which have been made of that nostrum by leading chemists show that it is nothing else but a concoction of sulphurous acid, oil of vitriol and Chicago water.

It is rather amazing to read the advertisements of the Liquid Ozone Company as they appeared in dailies during the fall of 1903.

For instance, we have before us a copy of the *New York American-Journal*, dated October 18th, 1903, where the Chicago "gentleman of high standing" and "absolute integrity" advertises their universal panacea as follows:

We Will Buy

a 50-cent bottle of Liquozone and give it to you to try. Liquozone —liquid oxygen—is the only product that can kill germs in the body without killing you. * * *

Then they go on with the following sub-heading:

Just Oxygen

Liquozone is simply liquid oxygen—no drugs, no alcohol in it.

What was their object in making such false statements?

Their object was evidently to convey the idea that Liquozone is similar to a legitimate preparation, sold under the name of Hydrozone, which really owes its antiseptic and healing properties to the immense amount of available nascent oxygen (near to the condition of ozone) which it contains.

In addition to this, the name "Liquozone" is confusing druggists and

even doctors with another legitimate preparation, "Glycozone," to such an extent, that in March last the editor of the NEW ENGLAND MEDICAL MONTHLY called at a drug store in Mount Clemens, Mich., asking for a bottle of Glycozone, when the clerk turned around and supplied him with a bottle of Liquozone.

Upon my remark that I did not ask for a bottle of Liquozone but for a bottle of Glycozone, spelling the name at the same time, he apologized, stating that he understood that I wanted a bottle of Liquozone.

This instance shows plainly that the confusion which has been created not only on account of the fallacious claims but also on account of the sounding of the two names "Liquozone" and "Glycozone," which is practically the same, is misleading to the limit. There is no doubt that many doctors have allowed themselves to be mystified until some medical journals and analytical chemists made public the constituents of this nostrum.

Thousands of unsophisticated people have been the victims of their ignorance and it appeals to us that if our different Boards of Health, including our National Board of Health, were investigating the Liquozone Company in the same manner as the San Francisco Board of Health did in June, it would be the means of protecting the public in the most effective manner.

The following official report from San Francisco Board of Health will very likely be read with interest:

*To the Honorable Commissioners of Health, City and County of San Francisco.*

San Francisco, Cal.,
June 14, 1905.

GENTLEMEN: I have the honor to submit a partial report on the work of our laboratories relating to pure food, pure drugs, etc.

* * * * * * *

I submit appended report from the laboratory respecting the analysis of "Liquozone," an advertised nostrum purporting to be an agent in which free oxygen and ozone are generated, and recommended for all of the ills which human flesh is heir to. This subject had been taken up extensively in the larger Eastern cities and in England, and the analysis from our laboratory is in harmony with the analysis made by the chemists of the laboratories in the various cities where this particular subject has been investigated. Liquozone contains no free oxygen or ozone, but is a mixture of acidulated water. Water constitutes 98.69 per 100, while the acids used are sulphuric acid and sulphurous acid in proportions of .9684 per cent. of the former and .2016 per cent. of the latter. It also contains traces of formaldehyde. Its use, therefore, as in internal medicament, is prejudicial to the individual health, and its use to any extent in a community, in the same manner, is prejudicial to the public health.

I therefore recommend that it be condemned by the Commissioners of Health, as a pernicious and unsafe drug. It may be used as a disinfectant for drains, urinals, stables, etc., and probably no objection could be urged against its external use by an individual to exterminate barber's itch.

I therefore recommend that the same action be taken in respect to this deleterious drug as is prosecuted by your Honorable Commission in the case of impure foods, viz.: that the Police Department and our Department act conjointly to have it removed from the shelves of all dealers handling this drug, and that the selling, exposing for sale or giving away of Liquozone, in the City and County of San Francisco, constitute an offense, the violation of which will be followed by arrest of the offenders.

Respectfully submitted,
D. F. RAGAN. M. D.,
Health Officer.

Dr. D. F. Ragan, Health Officer of San Francisco Board of Health, deserves the warmest congratulations from the San Francisco people for

his action and it is really desirable that all other Boards of Health of the United States should follow his example in investigating the Liquozone wonderful cure-all for the good of millions of helpless sick people.

According to some information received from San Francisco, it appears that Dr. Ragan is fearlessly investigating the food products and patent medicines and we simply wish that he will meet with the success that he so well deserves.

* * *

## THE TYPEWRITER AT THE PEACE CONFERENCE.

The typewriter played a conspicuous part in the Peace Conference at Portsmouth. Six Remington Typewriters, with Russian, French and English keyboards, were in constant use by the Russian and Japanese plenipotentiaries and the final draft of the treaty for engrossing was prepared on these machines. This recalls the fact that the Articles of Peace between Spain and the United States and between the British and the Boers were also written on the Remington.

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## THE PRUDENTIAL SECURES SOME BRITISH TERRITORY.

### Rock of Gibraltar Arrives at the Insurance Company's Home Office.

The Prudential Insurance Company of America, well known for its world-famed trade-mark, "The Prudential Has the Strength of Gibraltar," has just received, at its Home Office, in Newark, N. J., a great slice of the rock from the famous English fortress on the Mediterranean.

By arrangement with the American consul at Gibraltar, R. L. Sprague, this rock was quarried from the parent rock and forwarded to America on the North German Lloyd steamer "Koenig Albert," with certificate from the Admiralty Contractor at Gibraltar to prove its authenticity. Photographs showing the place from which the rock was cut out from Gibraltar have also been received by The Prudential.

The employees of The Prudential have a feeling of sentiment for the Rock of Gibraltar, the use of which as a trade-mark they feel has been largely instrumental in bringing about, through good advertising, increased popularity for The Prudential, and a public appreciation of the Scope and Strength of the Company, resulting from its progressive, and at the same time, Conservative administration.

The Prudential selected Gibraltar as its trade-mark because of the great and renowned strength of that famous fortress. The rock which came to America is of grayish-white limestone of such an unusually dense and compact mass, and offering such difficulties to the stone-cutter, that the judgment of the Prudential officials in selecting Gibraltar as a trade-mark is well verified.

The English authorities at Gibraltar readily gave their consent to sending the Rock to The Prudential, and the only cost involved was that covering the shipment. Small portions of the rock will be sent out as souvenirs to certain of the Company's employees.